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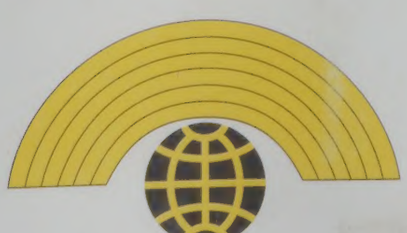
Addressing the Needs of People: Best Practices in Community-Oriented Health Professions Education

Ronald W. Richards
Judith Sayad

Editors



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What Does "Good" Mean?

Ronald W. Richards

> Students often ask me, "Will we be as good as doctors in the West?" This takes me back to my original question, "What is a doctor? Moreover, what is a good doctor?" The graduate of a London teaching hospital in a developed country is doubtless superior in ordering and analysing a wide range of tests, but how would he/she manage a rural hospital in Nepal? I have no hesitation in telling my students that, for Nepal, they will become not only as good as Western doctors but immensely better.
>
> **John Dickerson of the**
> **Institute of Medicine in Nepal writing in**
> ***"Innovative Schools for Health Personnel"***

This question - What makes a good doctor? - has been bandied about for many years. Certainly since the 1978 Alma Ata Declaration, the World Health Organisation's subsequent call for "Health for All by the Year 2000" and, more recently, WHO's "Towards Unity for Health" initiatives, a tremendous amount of attention has been given to the answer to this question.

Addressing the Needs of People: Best Practices in Community-Oriented Health Professions Education seeks to add to this discussion by looking at some specific efforts to train good doctors. While I hope it will be useful to those interested in establishing community-based health professions education programs; it is not a "how-to" book or an "implementation guide". Rather, it tells a story - actually nine stories - about how innovative approaches, institutional commitment, and a basic sense of social responsibility can go a long way towards training health professionals willing and able to achieve "Health for All by the Year 2000" (WHO, 1981).

In 1979, shortly after the Alma Ata Declaration, the World Health Organisation took the lead in creating the Network of Community-Oriented Educational Institutions for the Health Sciences, now known as The Network: Community Partnerships for Health through Innovative Education, Service, and Research. This organisation, especially its Full Members, has laboured for over twenty years at addressing the relevance of medical education to societal needs. In 1984, Tamas Fülöp and I, along with several other colleagues, evaluated ten schools affiliated with The Network to determine the extent of their involvement with their communities. From our findings, I outlined a leadership approach to educational reform (Richards et al., 1987; Richards et al., 1990; Richards, 1993).

In many ways, this book is an outgrowth of that earlier volume. The nine programs are true to the spirit of Alma Ata and follow the community-oriented and problem-based learning strategies espoused by The Network; however, they are not all Network members. East Tennessee State University is not a member of The Network. As you read the case studies, you will be struck by the differences in development, in sophistication and in curriculum. As a reader, you might well ask, "If these programs are considered exemplars of an *approach,* how can they be so diverse?" This is not an easy question to answer, but there is common context our exemplars share.

Here in Chicago, we have a community-based organisation called the Center for Neighborhood Technology. The have spent the last twenty years researching and promoting appropriate-scaled, neighbourhood-based solutions to common urban problems. They publish a quarterly newsletter entitled Place Matters. I cannot think of a more succinct way to express the overarching lesson from these nine case studies. A good doctor in Cuba is a good doctor for the Cuban people. Yes, there is a unifying body of knowledge and an underlying set of skills, competencies and proclivities, but the context of practice is an overwhelming factor. What are the pressing health needs in the community your graduates will serve? What does "incidence and prevalence" mean where your graduates practice? If infant mortality is high, why is it high? How do the people access care? What technology will your students have available to them in the local clinic? What implications does this all have for curriculum development?

Here are some examples: In the province of Eastern Cape in South Africa, an overwhelming number of clinics do not have potable water and do not have electricity. Given that fact, how much of the curriculum should focus on diagnostic x-rays? What are the local criteria for referral? In Sweden, with its system of socialised medicine, do we measure "successful intervention" by the number of days in hospital?

This same principle extends to the notion of what makes a good health professions school. In Zamboanga, the Philippines, the medical school staff is essentially all volunteer; they make their living by seeing paying patients at local hospitals. Should tenure and promotion be a front-line issue there? In Cuba, social policy has merged public health and systems of delivery. What percent of their curriculum should be spent on influencing public policy or building relationships with the ministry of health? For both of these examples, what does "commitment to community service" mean?

As you will see, none of these programs are quite the same: Curricular components are different, expectations vary and criteria of success don't match. And that is as it should be, for they are all exemplars of the dictum "place matters". If these programs were all the same, it would have made the researchers' task much easier, but it would also mean the programs were not responsive to their local communities and the environment their graduates will practice in. Tamas Fulop calls this relevance. Charles Boelen calls it social

accountability. Donald Weston, chancellor for health services for the University of West Virginia higher education system, put it clearly when he said, "Take public funds; give to the public" (Weston, 1998).

Research Methodology

This book is largely an outgrowth of the 1987 volume, *Innovative schools for health personnel* (Richards, 1987). The research methodology for that volume is discussed in detail in Zohair M. Nooman's *Innovation in medical education: An evaluation of its present status* (1990). Consistent with the notion that place matters, we set out to describe the programs from the *user's* point of view (Guba & Lincoln, 1981). In this case, we defined "user" in broad terms, including faculty, administrators, students and "the community". Because the organisational nature and representation styles of "community" vary so much from place to place, we tried to remain flexible in describing the *extent* of community involvement and have chosen to describe the *nature and form* of involvement.

Writing in *Utilization-focused evaluation,* Michael Patton (1978) urges researchers and program evaluators to move away from the natural science paradigm of hypothetico-deductive methodology with its focus on quantitative measurement, experimental design, and multivariate, parametric statistical analysis. He proposes an alternative, based on anthropological field methods, which stresses participant observation, in-depth interviewing, detailed description and qualitative field notes. In this study, the authors set out to follow Patton's suggestions while documenting the manner in which our nine exemplars meet the needs of their users.

Each case study is based upon a three-day site visit by the authors. Before the site visits were conducted, the authors as a group agreed upon the topics to be covered. Topics included: institutional characteristics, curriculum, admissions practices, evaluation systems, research, service, community involvement, faculty development, postgraduate programs and the school's relationship with government entities. In order to look at these topics, each author reviewed documents, interviewed key players, attended classes and visited practice sites. On many occasions, the interviewer was able to attend health-related community events or university-sponsored outreach activities.

Originally, ten exemplars were chosen. For a variety of reasons, the medical school in Benin was not visited, leaving us with nine field studies. The criteria for selection of the field studies were: capacity to provide evidence of improved health care in the area being served; the length of time that the school has been in existence; schools are not in the first book; the school graduates health professionals other than physicians; mission statement gives highst priority to health needs of people in the area being served; some control over their admissions process; 10-25% of student experience in community on a longitudinal

basis; 25% faculty teaching time in the community; students are formally evaluated on community experiences; program evaluation emphsizes community; research emphasizes community; organizational structure emphasizes linkage with MOH, organizational structure emphasizes community voice; school has representatives from the health delivery system. As would be expected,those selected were better on some critera than others; however, overall scores of the ones selected on these criteria were the highest of those considered.

In selecting the authors of each case the following four things were kept in mind: knowledge of the philosophy of the Network; a good writing ability in English, sensitivity to the area's culture and language, and not from the school being studied.

Each case study is presented as a separate chapter. As a reader, you will draw the inferences and discover the common issues and problems. Taken as a whole, I think our exemplars will help you look at your own program, its unique setting and institutional characteristics, the needs of the population it has set out to serve, and the resources at your disposal so that you, too can answer the question, what makes a good health professional?

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Christian Medical College

Susirith Mendis

> "One eventful night before the turn of the century, Ida, then a young girl visiting her missionary parents in South India, was asked to help three women from different families struggling in difficult childbirth. Custom prevented them from accepting the help of a male doctor and being without training at that time, Ida herself could do nothing. The next morning she was shocked to learn that each of these women had died during the night. She believed that it was a calling and a challenge set before her by God to begin a ministry to the health needs of the people of India." (Christian Medical College Hospital, 1998).

This earliest vision of Dr. Ida Scudder, the founder of the Christian Medical College, remains - one hundred years later - an unstated aspect of CMC's mission statement or, more appropriately, the 'creed' of CMC. It is remarkable that the inheritors of this spiritual legacy have been able to sustain and vitalise her benevolent vision throughout the technology-oriented and materialistic twentieth century. CMC has taken medical care to the doorstep of the poor and the suffering throughout the remote villages of Tamil Nadu, the south Indian state where it is located. This response to Ida Sophia Scudder's call to reach out beyond the sanitised walls of large hospitals and tertiary-care centres to the health and medical needs of the multitudes continues to be a main focus and impetus for CMC's service commitments and medical student training. This emphasis predominates the thinking of the faculty and staff and guides their approach to community health care and the unique programs established by CMC.

Context

Vellore is one of the six largest towns in the south Indian state of Tamil Nadu, which extends over an area of 50 square kilometres and has a population of about 550,000 (Facts & Figures, 1998). It was founded over 600 years ago and by the thirteenth century, it was an established administrative centre. It expanded and was further developed when the surrounding woodland area was cleared to build the historic fort.

The Christian Medical College and Hospital (CMC) was first established by a young American missionary, Dr. Ida Sophia Scudder, as a one-bed clinic in 1900. This was in response to what she strongly felt was the urgent health needs of Indian women. In 1902, it was expanded to the 40-bed Mary Taber Schell Memorial Hospital. Medical education began with the establishment of the School of Nursing in 1909 and a medical school for women in 1918. It became a Medical College in 1942 and men were first admitted in 1947.

The CMC serves a population across the full socio-economic spectrum seen in India. The state of Tamil Nadu has urban neighbourhoods and slums as well as rural and tribal communities. The CMC student body is a mix from various regions, religions and communities in India as well as from several other Asian countries. Each year, the CMC admits 60 medical students and 30 others for degree courses (three-year Bachelor of Science in occupation therapy, physiotherapy, dietetics and biostatistics). In the school year 1997-98, a total of 320 medical undergraduates were enrolled.

The 60 medical students (with a minimum of 25 females) are selected from about 7000 applicants. Preference is given to nominees from Christian Missionary Hospitals (CMHs). The average number of applications received from aspirants through CMHs is about 1000, of which 45 are selected. On this basis, 75% of the annual intake is reserved for applicants from the CMHs and are Christians. Therefore, there is a strong Christian bias in the medical students who enter CMC. Those selected from among the applicants from CMHs are bonded to serve their sponsoring CMH for at least two years before they continue with their postgraduate medical education.

The other 6,000 applicants have to vie for the remaining 15 (25%) places. Prospective students for seven of these 15 places are deliberately selected from economically (annual income < Rs.20,000) and socially underprivileged backgrounds and are given generous scholarships according to their needs. Preference is also given to the children of CMC faculty staff provided they academically qualify for entry. Eighty-five to 90 percent of the students at CMC come from cities and urban centres all over India. Only a very small percentage of students admitted are from rural backgrounds. As a result, the admission criteria of CMC are not based on academic merit alone unlike for the state medical schools in Tamil Nadu state and its graduates generally do not serve the state sector.[1]

The first postgraduate trainees were admitted to CMC in 1950 in the MD (general medicine) and MS (general surgery) programs. The trainees are full-time members of the staff actively working in the wards under the guidance of senior professors. In 1997-98, the intake of candidates for postgraduate diplomas was 34; there were 68 in training during the same period. Those in training for postgraduate degrees (MD, MS, PhD, MSc) during 1997-98 were 254; 89 was the intake for that year.

The CMC is a fast growing institution with a constant increase in demand for its services both as a medical school and a tertiary care referral hospital. This requires that existing facilities are expanded and new ones established. The CMC envisages future capital

[1] The Joint Director of Public Health, Vellore, expressed the view that there are hardly any ("almost none") CMC graduates working in the state health sector. The Tamil Nadu Public Service Commission recruits doctors to the 13 state hospitals in Vellore.

investments in new buildings and equipment are approximately Rs. 4.8 billion (1999 USD 122 million). Currently the largest capital development largest project is the Ida Scudder Centenary Centre to be built at a cost of Rs. 250 million (1999 US $ 6,25 million). This new wing to the hospital complex commemorates the 100-year anniversary of the CMC and has allowed the hospital to significantly expand its services.

At this time, the CMC is affiliated with the University of Madras, a common arrangement for both private and public medical schools in South India. As will be discussed throughout this chapter, this affiliation determines a number of institutional practices.

The estimated annual cost of student training at CMC is as follows: medical student, Rs. 139,700 (US $ 3,949); nursing degree student, Rs. 45,000 (US $ 1,126); allied health science degree student, Rs. 44,800 (US $ 1,121); allied health science diploma student, Rs. 30,000 (US $ 750).

The academic staff, including the clinicians, do not resort to private practice and depend on their salaries as sole remuneration. This is in compliance with the educational and social philosophy of CMC, one that emphasizes commitment, service, relevant care, appropriate research and concern for the needs of the 'whole person.'

The CMC seeks to produce a *basic doctor who can "function in any setting"*, a concept common in South Asia and the developing world. "A basic doctor" is one who is competent to perform medical tasks in less-than-ideal facilities. A basic doctor must be able to function in rural settings, district facilities and tertiary care hospitals.

At CMC, this objective is achieved by a strong community-oriented and community-based curriculum using the field area of the community development block - Kaniyambadi[2] - together with clinical training in the sophisticated tertiary-care CMC Teaching Hospital.

The CMC has established several community-oriented and community-based programs for medical student training in community health. Among them is the Community Health & Development (CHAD) Program with its outreach activities organised at the CHAD Hospital in Bagayam.[3] The CHAD hospital provides expert human resources, and serves as an information and training resource centre. CMC's outreach activities and community-based programs are initiated and implemented through it. In a sense, it serves as the "headquarters" of CMC's COME and CBME activities. The Community Development

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[2] An entirely rural area of 300-400 families with a population of 100,000 living in 68 villages that are accessible by motorable roads. They are entirely dependent upon agriculture. Forty percent live below the official poverty line and are illiterate.

[3] An 80-bed hospital managed by the Community Health Department of CMC with an out-patient department (OPD); 5% of admission are obstetric referrals.

Society (CODES), an independent registered society initiated by the CMC, has its own program that interacts closely with the CHAD program. These two programs take pride of place and are not described in detail here, as they have been written about extensively elsewhere (Mattock & Abeykoon, 1993). Prof. Abraham Joseph, director of CHAD & CMC's professor of community health, explained it was the realisation that *"once improvement in health indices reached a certain level with medical and health care intervention, further improvement in them can occur only by the development in the socio-economic status of the community"* which prompted the CMC to embark on the CHAD and CODES Programs. The CHAD program aims at *"empowering each community to become responsible for its own health within a stable and adaptable structure of professional support"* and takes primary health care delivery to the villages and uses it to train medical students and community health postgraduates (Joseph, 1985). One of the primary objectives of the training program is to increase the students' awareness of rural health problems, while also affecting appropriate attitudinal changes and encouraging social responsibility among the physicians produced by the school.

The CODES program, originally established to uplift the economic status of each household included in the CHAD program by initiating income generating activities for women, now has an independent life of its own. Very successful ventures in dairy production, palm-leaf products, metal works, masonry and carpentry bring in supplementary income to 2,500 households. The initiation and development of such a social program by a medical school is of special significance. In the case of the CMC in particular, it gives an insight into the unwritten social ethic built into its institutional objectives and mission statement. This social ethic strongly pervades the ambience of the CMC.

Curriculum

The Medical Council of India has stipulated that a medical course should consist of nine semesters (4,5 years). The faculty at CMC does not decide the basic medical curriculum at CMC. Since the CMC is affiliated with Madras University, the CMC (as all other medical schools affiliated with Madras University) must follow the basic curriculum decided by the Curriculum Committee of Madras University. Representatives from all affiliated medical schools are members of this curriculum committee.

The first phase of the MBBS consists of a one-year program with the subjects of anatomy, biochemistry and physiology. The second phase, 1,5 years in duration, includes pathology, microbiology, pharmacology and forensic medicine as subjects. The third MBBS phase is a one year program including community medicine, otolaryngology and ophthalmology as subjects. The final MBBS phase covers the four clinical subjects: medicine, surgery, paediatrics, obstetrics and gynaecology.

Within the broad framework so decided, each medical school affiliated with the University of Madras may make the adjustments suited to them and in keeping with their institutional objectives. A major emphasis in the curriculum at CMC is training in community medicine, part of which includes living in a village for up to two weeks during the course and participating in activities designed to provide practical knowledge and experience of the life of rural people.

Training of medical students in community health at CMC occurs in four phases. There has been internal debate within the CMC faculty in recent times on the proportion of time that should be allocated to community-based primary health care training as compared with time allotted to the basic sciences (anatomy, biochemistry and physiology). As a result, the Community Orientation Program (COP) which was three weeks in duration during the first phase is being reduced to one week. The loss of these two weeks during Phase One is to be compensated by an increase during the Phase Three clinical training periods.

Community Orientation Program (COP)

The 3-week program allowed adequate time for students to go to the community (villages) so that they could familiarise themselves with the demographic, socio-economic and environmental aspects of rural community health (Joseph, 1985). The students worked in multi-disciplinary teams that inculcated them with respect for the input from the other health-related disciplines essential for effective community-based health care. Students are divided into small groups that must include a female student, a Tamil-speaking student and one student from either the occupational therapy or physiotherapy program. Each group is assigned to 12 -15 households. They are expected to identify health problems (e.g. anaemia) in the allocated households and take whatever action (i.e., diagnostic tests such as blood filming performed on-site in the community) may be necessary and available to manage the condition. In addition, they study the households in detail using pre-designed questionnaires that enable them to elicit information on the daily lives of the members of these households. At the end of this period (Block 1), students have to make case presentations in the community setting. Clinicians (physicians, obstetricians, gynaecologists, paediatricians) usually attend these presentations.

Assessments of chronic diseases such as leprosy and tuberculosis are made. Students also assess congenital anomalies as well as the acquired disabilities associated with various disease states (i.e., tuberculosis and emphysema, leprosy and neuropathy). The presence of the occupational therapy and physiotherapy students in these teams adds other dimensions to the management of many patients. For example, occupational therapy and physiotherapy students make important inputs into the management of patients with neurological disabilities and deformities due to leprosy, whereas nutrition and dietetics

students contribute to the dietary advice and management of nutritional anaemia. This creates a unique opportunity to develop a 'team work' ethic among the students. The students are also exposed to didactic lectures on psychology, sociology and biostatistics.

Medical interns interviewed concerning their perceptions of CMC's COP Program were near unanimous in saying that as students they enjoyed the COP program not only because of the active learning *in-situ* in the community, but also because they had *"fun learning"*, *"developed long-term relationships"*, and *"made friends"* in the situation of *"living in the villages for three weeks"*. The program was so interesting and exciting that most felt it was *"too short"* or *"not long enough"* and many felt so involved in the program that they wanted *"to end up becoming community health physicians"*. Since the large majority of students are from urban city centres (85-90%), they find the early exposure to rural poverty and health problems creates a major re-orientation in their perspectives and provides a forceful realisation of *"how the other half lives"*. Even though the students, in the course of time, will forget some factual material learnt during the COP program, studies have shown that some attitudinal changes remained even five years later (Paterson, 1989).

Community Health Program I (CHP_1)

CHP_1 is an interspersed program in the first clinical year, consisting mainly of didactic lectures on epidemiology, demography, medical administration, hospital administration and health planning. It is of two weeks duration and includes field activities as well. The students work in groups of 10-12 in three villages. They are expected to use the knowledge acquired in the classroom to conduct cross-sectional surveys of mortality and morbidity and use this data for estimating health indices such as mortality and morbidity rates, birth rates, the crude death rate (CDR), prevalence and incidence of diseases, and maternal and infant mortality rates. Students, interns and some junior members of the clinical faculty were all of the view that, after the very positive experience of the COP program, their expectations were not met by CHP_1. There was *"too much theory"*, they *"felt cheated"*, *"some aspects of the theory was superfluous"* were among the comments made. The faculty (Department of Community Health) is also aware that CHP_1 is *"not popular with the students"*.

From the data collected and analysed during CHP_1 students identify a specific problem to be formulated into a research project carried out during Phase Three (CHP_2). CHP_1 culminates in the evaluation of the knowledge that the students have acquired during this period including basic principles in community health and health systems research.

Community Health Program II (CHP_2)

CHP_2 takes place in the second clinical year and is two weeks in duration. Students in CHP_2 conduct a community-based epidemiological research study. The block posting in CHP_2

is preceded by regular weekly meetings with staff at which the objectives and methodology of the research projects are assessed and approved. The students, organised into groups of five to eight, are required to evaluate the health status of a community of about 1500 residents. They plan, carry out and assess the program they have developed (Mattock & Abeykoon, 1993; Joseph, 1985). During the two-week block posting, students are expected to make their own arrangements and time schedules. Two staff members serve as resource persons and provide guidance. The last few days of CHP_2 are used by each group to prepare and make presentations to staff for critical evaluation. These presentations cover the objectives of their project, the methodology used and the analysed results. The students are evaluated on knowledge acquired during the program and changes in attitude towards the community-based approach to health care and training.

The students are also expected to assess the effectiveness of the program in terms of its usefulness and skills developed in planning a research project. When interviewed, interns at the CHAD Hospital said that they found the first 2,5 weeks of CHP_2 not adequately stimulating. (This portion was not a block program, but occupied a few hours each week with other fourth year subjects.) CHP_2 in general was considered to be good where the student interest was continuously sustained. They were of the view that CHP_2 was a well-planned program with targeted goals that were achievable. They also felt that the clinicians *"should have participated in the program right from the beginning"*. It was a *"rewarding experience"* since on occasion there were practical outcomes from their research conclusions and recommendations. An example cited was the effect of a project studying transport problems villagers experienced when they needed to get to the hospital in an emergency. This study resulted in the local authorities providing regular public transport (a bus run on a schedule) to a village, which did not have such public transport previously.

Community health postgraduates said that as medical students, they appreciated CHP_2 especially because it gave them an intimate insight into rural health problems and *"an awareness of the needs of poor patients"* that would make them mindful of, for example, *"not prescribing costly medicines"* for those who can clearly ill-afford them. While these observations can be considered to be biased since they were from postgraduates who had specifically opted for a career in community health, they were given credence when the same sentiments were echoed by junior clinicians (psychiatrists, surgeons, a paediatrician, an ophthalmologist and a pharmacologist) during discussions.

Internship Period

Phase Four during the one-year compulsory internship, is a continuation of undergraduate medical education. All CMC graduates do their internship at CMC. This consists of a three-month medical appointment (two months in general medicine and one in the intensive care unit); a three-month surgical appointment (two months in general surgery and one in

orthopaedics); a two-month appointment in obstetrics and gynaecology; one month in paediatrics; and three months in community medicine. During the three month community medicine posting, 3-4 weeks is spent at the CHAD Hospital actively participating in all its services and outreach activities. The interns are allocated duties and responsibilities in organising and implementing primary health care services in the areas they are posted to. These include: performing simple laboratory investigations and minor surgical procedures such as tubectomy and vasectomy; organising preventive services for vulnerable populations such as women and children; conducting surveys to evaluate the health status of the community; undertaking basic health education; functioning as a medical officer in the health centres; and learning to appreciate the importance of inter-sectoral co-operation in the community setting (agriculture, education, veterinary science) in the delivery of effective primary health care.

The medical students at CMC who participate in the community health training curriculum are known to have a heightened awareness of community health needs. They develop appropriate attitudes commensurate with the institutional objective of CMC to create a caring, basic doctor relevant to India's health needs. The community health training at CMC is considered by its alumni as what gives CMC its qualitative and distinctive identity and makes it different from other medical schools in Tamil Nadu. Alumni are able to maintain a continuing interest in this community orientation since it is *"clinically-oriented"* and has a *"strong clinical bias"* Even junior clinicians who were CMC students feel that their community health training had a *"subconscious effect"* and *"contributed in large measure to their clinical and ethical perspectives"*. They were also emphatic that CMC created a *"higher degree of empathy"* in the students for the socio-economic and health needs of the poor. This was accomplished not only by the special community health training they received, but also as a result of the commitment of the faculty who serve as admirable role models of the CMC ethos. The Joint Director of Public Health in Vellore, who made a strong case for the medical graduates from state medical schools, was generous and unstinting in her comments that the CMC graduates are seen to be *"different in behaviour"* and *"generally better in attitudes"* in contrast to state medical school graduates. The importance of her support is best understood in the context of south Asian politics and the ideological clash between the state sector and private sector.

The four phases of community medicine training at CMC have been so well integrated into the medical curriculum that it is difficult to distinctly identify the community health components in the core curriculum. As explained earlier, many perceive community orientation to be the core of the CMC curriculum. CMC does not offer electives in community health, but makes its training, skills development and experience required components of the curriculum. The community health curriculum is so constructed with its 'open' approach to training in the field service areas that it is driven not only by the academic staff, but also by the students as well as the community. Recently, time constraints within the teaching/learning schedules have prompted CMC's Department of

Community Health to compromise the program. The time pressures from other faculty, particularly those in the basic sciences, is problematic. Nevertheless, the overall 'institutional will' remains community-oriented and the curriculum is community-based to a significant extent.

Evaluation

The problem-based learning methodology has been the main mechanism used for imparting knowledge, skills and attitudes during the community health program. This has enhanced student awareness of self-initiated, student-directed learning as a valuable learning device.

Program evaluation is systematically done with every batch (class) of students for each of the three components - COP, CHP_1 and CHP_2. Every component of the program is evaluated by independent pre-designed questionnaires. The response of students has been uniformly good through the years, with only 2-10% of students showing negative evaluations. The knowledge acquired by students is evaluated by pre-COP and post-COP tests as well as formal assessments: 30% for written papers (MCQs and short structured essays); 30% for records; 30% for the final evaluation test; and 10% from a series of in-course written tests are used in the evaluation. The students are given case studies as assessments after CHP_2. Previously completed case studies are given to the students after completion of CHP_2. Students are expected to analyse the cases and submit their findings and recommendations. These are evaluated and the grade (or mark) becomes the formal component of each student's evaluation. This grade serves as a percentage of the student's final evaluation in the subject of community health. Students also make presentations of their work in an informal setting (seminar) where both faculty and students critically assess each other's presentations. These assessments are used to improve their research projects prior to implementation. In addition, student attitudes are assessed by the faculty through a pre-designed questionnaire administered to them on the COP and CHP programs.

Institutional Profile

As mentioned in the beginning of this chapter, Dr. Ida Scudder, the daughter of missionary parents founded CMC, in 1900. Her vision and spiritual legacy continues to guide and influence CMC's approach to service and medical student training.

This does not mean that the CMC has allowed this special focus to create an imbalance in the medical education to such an extent that it excludes developments in 'modern scientific medicine.' CMC and its hospital occupy a prominent position among medical institutions in India not only due to its technological sophistication, but also as a result of its pioneering

endeavours in medical and surgical innovations.[4] It has created a unique and enviable national and international reputation for itself. It is recognised as a leading referral hospital offering tertiary care services with up-to-date medical technology while also maintaining its commitment to the health care needs and medical attention of the deprived and disadvantaged. This has been made possible by the CMC belief in *"the wholeness of healing"* and its attempts to *"integrate health with spiritual nurture"*. It has been stated that *"CMC's principle achievement lies in the lives of hundreds of health personnel who have studied and worked at CMC" and imbibed the spirit of "compassionate competence".*

The CMC, which is primarily a centre for undergraduate medical education, is also a centre for rural community development. The CHAD Program that was developed initially as an institution for a community medicine training for medical students has gradually expanded its scope and become a centre for health care, education, social and economic development of individuals and the community within the regions covered by this program. The CHAD Program in its institutional evolution spawned other institutions that are mainly oriented towards social and economic development with the underlying awareness that improvements in health require certain social and economic pre-conditions. These include: the Community Development Society (CODES) that encourages and facilitates a home-based rural industry; the Rural Unit for Health & Social Affairs (RUHSA) that initiates social, educational and economic development of the target population through delivery of primary health care; and the highly-successful Self-Help Association for Rural Education and Employment (SHARE) which has had a dramatic effect in the empowerment of women. SHARE is now managed as an independent organisation committed to the education, self-reliance and economic independence of women.

Research, Faculty and Staff Development

CMC, as any other medical school, has a faculty whose work includes academic activities and research as well as clinical duties in the CMC Hospital within the town centre and away from the medical school. The CMC has academic departments and a specialist cadre not only for the traditional subjects in an undergraduate medical course, but also for departments and units in the clinical specialities, including orthopaedics, ophthalmology, gastroenterology, cardiothoracic surgery, developmental paediatrics, biostatistics, reproductive medicine, plastic surgery and others. The importance that CMC gives community health and preventive medicine as academic disciplines is matched by its commitment to the development of modern medical technology and curative services.

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[4] From the first reconstructive surgery on leprosy patients in the world (1948) and first successful open heart surgery in India (1961) to the first transseptal carotid stenting procedure and first transjugular mitral valvoplasty procedure in the world (1997), CMC has been in the forefront of advances in medical technology and surgical innovations both nationally and internationally.

This dual commitment is also reflected in the sphere of research and development at CMC. Research is considered an integral academic activity. There were 211 ongoing research projects at CMC during 1997/98; 55 new projects were approved and commissioned in the same period. Funding has been obtained from eight national and 20 international agencies. These include the Indian Council of Medical Research (ICMR), the Indian Department of Science & Technology (DST), the Indian Department of Biotechnology, the Indian Council of Scientific & Industrial Research (ICSIR), the Department of Atomic Energy, India, the World Health Organisation (WHO), US Department of Health, Rockefeller Foundation, Ford Foundation, USAID, British Heart Foundation, and Danida-Denmark, as well as some foreign universities and multinational pharmaceutical companies. The research areas CMC is involved in range from basic science research on diabetes (e.g., 'xenotransplantation of monkey pancreatic islets in rats') to clinical research on bacterial infections, drug resistance, vascular disease, neurochemistry, metabolic disorders, oncology, radiation therapy and respiratory infections. The focus on community-oriented and community-based research is maintained with projects on public health problems of HIV/AIDS, child growth and development, community-based rehabilitation, adolescent health, gender issues in health, safe motherhood, women in development, family planning, immunisation and diarrhoeal disorders. The Epidemiology Resource Centre and the Clinical Epidemiology Unit have contributed to this endeavour in terms of human resource development in epidemiology (conducting courses in research methodology and development of research protocols) and conducting epidemiological research. Hence, both biomedical and community health research are being done at CMC without a conscious institutional bias or incentives for either. This applies to the faculty in general where career advancement or monetary remuneration is not based on contribution to community health related activities. The CMC does not have a defined faculty staff development program. Academics are given encouragement for research and career development through regular seminars, conferences and research colloquiums held at CMC. It is a focal point for WHO (SEARO) medical education activities in community-based curriculum development and the CMC staff have access to expertise in these areas.

Conclusion

By virtue of being an institution built upon the visionary and missionary zeal of an individual from an alien culture, the CMC remains culturally isolated from the predominant eastern philosophical tradition of the Indian subcontinent. A strong western-oriented Christian tradition permeates the very being of the CMC and its immediate environment. The important position given to the Christian faith in undergraduate medical education at CMC can be seen from the inclusion of an hour each week for a Bible Class in the regular time schedules throughout the medical course. The very high intake of students from Christian missionary hospitals, churches and Christian organisations in India and overseas that support its activities is indicative of the sources of CMC's economic, ethical and

spiritual sustenance. The CMC does not attempt to hide this in any way, and in fact, is proud of its spiritual foundations. The CMC believes that *"faith and prayer play a very real and integral part, along with physical, mental and social factors in the healing of the whole person"*. They claim that CMC's 'ministry of healing' includes a strong desire that the medical and technical aspects of health be integrated into and strengthened by the attitudes of mind and spirit. In pursuit of this 'higher purpose,' the CMC has a Chaplaincy Department to *"foster a sense of mission and fellowship among all categories of employees, faculty and students"*. The location of the Chapel at the heart of both the Medical College and the Hospital symbolises this belief. For the first time in India, CMC has started a one-year training program, the diploma in Pastoral Healing Ministry (DPHM); ten candidates have already completed it. This Christian spiritual philosophy in practise makes the CMC necessarily stand apart from, and outside of, the indigenous, multifaceted cultural mainstream in India. From this perspective, the CMC is not representative of a typical Indian medical school - even among those with a community-based and community-oriented curriculum.

The CMC has developed a model in community-oriented and community-based undergraduate and postgraduate medical education that is difficult to emulate for an average medical school in the region or elsewhere. The requisite pre-conditions for such an attempt would be an accessible semi-urban location surrounded by a populated rural area; a socially, economically and culturally deprived population; and an academic faculty with a commitment and concern based on a strong social or spiritual ethic. This combination of factors is an extreme rarity. Therefore, the CMC model must necessarily be equally rare.

Nevertheless, to attempt to understand the unique character of CMC and its community-oriented and community-based undergraduate medical training is very useful. (Proceedings, WHO Workshop, 1990). To do so, an in-depth, multi-disciplinary study has to be made into the interactions between the CMC in its role as a medical school and the CMC as an institute of rural social development together with its inevitable health and socio-economic outcomes. This is an exercise that is beyond the scope of this chapter on the Christian Medical College, Vellore, India.

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Faculty of Health Sciences, University of Transkei

Gail Andrews

South Africa, a nation of 43.11 million, is situated at the southern tip of the African continent. It is regarded, in terms of World Bank classification, as an upper middle-income country (Bradshaw, 1998, p.8). In spite of this classification, South Africa has higher levels of ill health than countries with similar levels of economic development (Financial and Fiscal Commission, 1998).

Transkei was an 'independent state' (or 'homeland') from 1976 to April 1994; Umtata served as its capital. Transkei stretches from the Indian Ocean in the east, the Drakensberg Mountains in the west, Umzimkulu River in the north and the Kei River in the South. It is now considered part of the Eastern Cape province, an area of approximately 45,000 square kilometres with an estimated population of three million (Byarugaba, 1991).

The Eastern Cape, one of the poorest of the nine provinces of South Africa, has a population of 6.98 million people, 36.6% of whom are urbanised (Bradshaw, 1998). There are no major industries in this region and no natural resources. Moreover, the land is barren, thereby limiting agricultural production. A study conducted by Byaraguba (1991) showed that the socio-economic status of families, as indicated by the monthly per capita food expenditure index (MPCFE) was generally poor. The MPCFE revealed a gross inequality in income distribution from urban through peri-urban to rural areas, where the majority of people live. There has, however, been a rapid rate of urbanisation, mainly to Umtata, and subsequently to other cities such as Cape Town and Johannesburg. Despite this, Transkei's population remains dispersed and the province has a rural character.

In the past, the apartheid laws in South Africa curbed the process of urbanisation by keeping blacks in 'homelands' and other rural areas. However, with the abolition of the pass laws in 1986, the process of urbanisation has proceeded unhampered. In Umtata, as in other cities, this process of urbanisation has created a rapidly expanding peri-urban fringe, which is occupied mainly by rural-urban migrants seeking employment in the cities.

The living conditions in rural areas remain extremely bad. Many people have almost no access to safe or clean potable water, and "depend on unprotected springs, wells and rivers where the dirty water is shared with their animals" (Byarugaba, 1991, p. 447). There are virtually no toilet facilities and the bucket system is used in most towns. Most people living in the rural areas are poor subsistence farmers. The high rate of migration of young people (mainly men) to towns and cities has affected the demographic structure. Women and children are left behind to care for old people, and depend financially on meagre allowances sent by relatives living in the cities. Many preventable diseases - especially tetanus, gastro-enteritis and measles - still account for the high infant mortality rate.

The roads in this former 'homeland' region are poor, and the health facilities, which have undergone some improvement in recent years, are still grossly inadequate. Mfenyana (1998) has pointed out that the geographic location of the former Transkei, the spatial distribution of the population, and general lack of infrastructure have compounded the problems that result from the low number of primary health care facilities and the difficulty locating facilities within walking distance from where people live. Where facilities exist, they are plagued by infrastructure problems. A national survey commissioned in 1998 (Edwards-Miller, 1998) found that the Eastern Cape had the highest proportion of clinics without indoor potable water and the lowest proportion of electrified clinics. The survey also indicated that clinics with water taps and electricity do not receive these services on a consistent basis. The Eastern Cape was found to be the worst serviced province, with just over one-half of its clinics having consistent water supplies and less than one half of the clinics having uninterrupted electrical supplies.

The University of Transkei (UNITRA) is situated in this former homeland region and to date it is the only university with a medical school in the Eastern Cape. The establishment of the medical school was a political decision by the former Transkei government, and was essentially a response to the previously enumerated socio-economic and human resource needs.

Background

All medical schools in South Africa were established during the Apartheid era, and the focus of medical training was on curative care in large technological hospitals in urban settings. Graduates of these programmes were predominantly white and middle class, and did not enjoy working in rural, disadvantaged areas. This imbalance in the training of medical personnel created a shortage of black doctors, particularly in the rural regions of the country. To address the shortage of black doctors, the South African government, on the recommendation of the De Villiers Commission, proposed that the existing medical schools increase their intake of black students, and that no new medical school be established in South Africa for five years (until 1988) when a new medical school for 'non-Europeans' could be considered. However, in 1985, the then-state president of the Republic of Transkei announced that it would establish its own medical school. The homeland government argued that the Republic of Transkei was a sovereign state, and therefore did not have to abide by the decisions of the De Villiers Commission. The homeland government then forged ahead in spite of opposition from South Africa.

Unlike other medical schools that were subsidised by the South African National Department of Health, the homeland government funded this new medical school. It received a limited budget of about R 12 million ($1.5 million US $ 2000) from the homeland government -was taken from the budgets of other Faculties within UNITRA.

In 1989, an application to extend the medical school was made to the South African government. This time the South African government was more sympathetic because the medical school was already established and functioning. They were, however, prepared to support the UNITRA medical school only on condition that it showed itself to be different from the all other medical schools. Funding was to be provided by the Development Bank of South Africa (DBSA). Faculty then started developing the new innovative curriculum in 1990. With the release of future President Nelson Mandela in 1990 and other political changes in South Africa at the time, it became clear that the Republic of Transkei was going to become part of South Africa. The DBSA therefore withdrew its funding, and the medical school remained underfunded.

In 1994, after several centuries of colonial domination and forty years of rule by the apartheid government, South Africa finally achieved political freedom, democracy and a constitutional basis for equality. The new National Department of Health established another commission of enquiry into the training of dentists and doctors in South Africa. An important outcome was that the UNITRA medical school was accepted as one of the medical schools in South Africa, dispelling fears that it would have to close down. It was then funded by the Ministry of Health, as is the case with all medical schools, and even received additional funding to make up for all the years that it was underfunded. While this support by the government can be ascribed to its policy of equity and redistribution of resources, it can be said that it is largely the result of the innovative, community-based medical educational program of UNITRA. The National Department of Health has also supported the establishment of a new academic hospital (580 beds) in Umtata, and construction began in November 1998.

Given the above context and background, it can be said that since its inception, the Faculty of Health Sciences has been committed to a program that develops in its graduates both the technical and social skills necessary to practise in rural, disadvantaged communities. According to Iputo & Nganwa-Bagumah (1996, p. 649), the following are some of the student-oriented competencies identified for the medical program. These same competencies were adopted by the nursing program when it was founded in 1997. Students will:

- learn problem solving and hypothetico-deductive reasoning;
- acquire the habit of self-directed learning;
- develop communication skills through small group interaction;
- acquire knowledge and understanding;
- provide an integrated understanding of human patients;
- foster individual reflection and self-assessment; and
- learn to tolerate ambiguity, adjust better to change and to be flexible.

It was clear that a traditional medical curriculum could not achieve these objectives. The faculty of the UNITRA medical school then proceeded to develop the new, innovative curriculum described later in this chapter.

The Faculty of the Health Sciences includes a nursing program that offers a four-year undergraduate nursing degree. UNITRA's nursing program is one of the first undergraduate problem-based programs in the country and had the benefit of being able to draw on the experience of the medical school. Students were first admitted in the fall of 1997; at the time of this site visit, the first cohort of students was beginning their third year of training. In this chapter, the discussion of UNITRA's nursing program is essentially limited and covers its development, curriculum and research activities. More time will have to pass for a meaningful evaluation of the nursing program to take place.

Educational strategies

This section describes the medical and nursing curricula of UNITRA and is based upon an analysis of interview data and relevant documents, including course outlines and an orientation brochure prepared for first year students (Faculty of Health Sciences, 1999).

The medical and nursing curricula at UNITRA are both problem-based and community-based. The educational strategies in nursing are similar to those in medicine; for instance, both medical students and nursing students are placed in a community-based primary health care setting during the first year of study. A brief description of each of these strategies is given below. The sequencing and timing presented refers to the medical program only.

Problem-based learning

In the first three years, medical students learn through written problems (clinical cases) designed to cover both theoretical and knowledge aspects of the curriculum. Students use paper cases and clinical cases as starting points in the learning process. Cases are selected to reflect the most common health problems of the community. Students meet in small tutorial groups for three two-hour sessions each week. Cases are printed on pages and passed out one at a time in group sessions. Two tutors, one trained in clinical science and one with a basic science background facilitate each group. Together, students and tutors formulate educational objectives relevant to the case.

During their case study, students consult with subject experts. A resource session in the disciplines of biochemistry, physiology, histology, pathology and microbiology is scheduled as part of each case investigation. The objective of the resource session, which is mostly in the form of a structured laboratory exercise, is to answer questions and advance the level of students' understanding. Students individually search for information in the library, the multipurpose laboratory and by attending related seminars. When the group meets again, they exchange information and assess whether they have met their learning objectives. This learning process helps students acquire the competencies outlined above.

The clinical tutorial in the fourth, fifth and sixth years is an adaptation of the problem-based learning (PBL) methodology used in the first three years. (Buga, 1998). Each week a

specific clinical case is dealt with during two three-hour tutorial sessions. Real cases replace paper cases, except in those situations where a patient with the condition of interest is not available at the time (which seldom happens).

Community-based education and service

Community-based education and service (COBES) activities comprise approximately 30% of the medical curriculum, increasing progressively from two weeks during the first year to 25 weeks during the sixth year (Iputu & Nganwa-Baguma, 1996, p.649). In the nursing department, COBES activities increase progressively from one day per week during the first year (in a community-based primary health care setting) to four days per week (primarily in a hospital setting) during the fourth and final year. Through these community-based activities, medical students and nursing students acquire the skills necessary to manage most common health problems of individuals and communities.

Curriculum Outline

The medical curriculum is divided into three phases and is characterised by both horizontal and vertical integration of academic disciplines. Although students are exposed to the clinical disciplines beginning with the first year of study, Phase One (year one) and Phase Two (years two and three) emphasize the basic sciences. The third phase (years four, five and six) emphasizes clinical medicine while continuing relevant learning in the basic sciences. The third phase also includes the clinical clerkship.

The nursing curriculum is divided into four phases, each a year long. As in the medical curriculum, more time is spent in the patient care setting in the later (last two) years, and real problems tend to replace paper problems. As in medicine, it is characterised by both horizontal and vertical integration of academic disciplines, with a focus on the basic sciences during the first two years.

COBES Activities

This section describes the distribution of community-based activities (COBES) during each phase of the medical and nursing curricula. The nature of COBES activities in each phase depends upon the overall objectives associated with that phase. An outstanding feature of both the medical and nursing curriculum is that health education and promotion activities, projects, and/or programs are integrated throughout the curricula, as are the primary health care principles of community participation, intersectoral collaboration, and the use of technology appropriate to the practice environment.

Distribution and nature of activities

In the nursing curriculum, COBES activities occur throughout the year during each phase of the program. First year students are placed in community-based PHC settings one day per week. During the second year, students spend one day in the hospital setting and one day in the community setting. This is increased to two days in the hospital setting and one day in the community setting during the third year. While all four days in the final year are spent in the hospital setting, placements are not restricted to large hospitals but include district hospitals and their network of mobile clinics serving rural areas.

As all health professionals are required to develop a set of core competencies which enable them to work effectively with communities, the nature of the learning settings and COBES activities are similar in both the nursing and medical curricula, especially those covering community health/public health practice. The activities aimed at the acquisition of clinical skills are also similar, except that the emphasis in nursing is on the provision of nursing care rather than the diagnosis and treatment of patients.

Due to these similarities, this discussion of the medical school's COBES activities is organised so as to highlight its differences with the nursing curriculum. The third year of the medical curriculum is described in greater detail, as this is the year during which medical students spend most of their time in community-based PHC settings.

During the first three years, medical and nursing students are allocated to all the peripheral (district) hospitals in the Transkei region. They are also placed in the UCHPP clinics, a project of the W. K. Kellogg Foundation.[1] During these early phases, emphasis is placed upon understanding the community, its demographics, resources and main health problems. Students also interview and examine patients in the hospital and UCHPP clinics. Each week, they select at least two patients from whom they derive a set of learning issues. In their tutorial group back at the university, each student summarises the basic science principles related to the specific case.

In the first year, students are involved in COBES activities for approximately four weeks; in the second year, three to four weeks. During the third year, students are engaged in COBES activities one day a week throughout the year. Generally students spend the mornings in the UCHPP clinics, and venture out into the community during the afternoons where they carry out a variety of activities. The third year activities, described in detailed below, illustrate how COBES provides the opportunity for students to learn the biomedical, clinical, behavioural, psychosocial and epidemiological sciences in an integrated way.

Third year COBES activities

Students are divided into small groups, each with its own tutor, and are assigned to a clinic.

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[1] The UCHPP is described in detail on page 40 of this chapter.

The student group is assisted by community-based staff: the chief professional nurse in charge of the clinic, a doctor (who may be a primary care physician from the clinic), UCHPP community liaison officers and community health workers. The first two weeks of the community-based placement are spent introducing the students to community leaders and members of the health team. In addition to clinic placement, community-based learning experiences are primarily acquired through conducting projects and surveys and participating in family attachments.

Primary health care centres and clinics

At the PHC center, students learn basic pathophysiological principles in an applied situation. During the third year, they are introduced to the concept of disease process and determinants of disease, as well as the principles of diagnosis and levels of intervention. This activity occurs in the PHC clinics in the morning, once per week throughout the year. With the facilitation of tutors and clinic doctors, students explore the basic pathopysiological principles involved in a specified illness. The clinical teaching emphasizes the content being explored during the problem-based tutorial sessions, which reinforces students' understanding of the basic principles from an applied perspective. Through this activity, students learn how to approach and assess a patient and how to function as members of the health team.

Students are also expected to get to know the clinic. Over four weeks, afternoons are spent investigating the structure, various functions and utilisation of the clinics. They write reports that are presented and discussed during the fourth week. In this way, students learn the concepts of vital statistics, biostatistics and the classification and distribution of disease (basically an introduction to epidemiology). They also learn the skills of record keeping, data analysis and report writing, and the utilisation of data for the purposes of health services management.

Community projects and surveys

"Get to know the community" is a COBES activity that occurs over four weeks, again in the afternoon. With the assistance of the community liaison officer and community health workers, students are allocated to a defined area (one of the UCHPP partnership communities) and explore the demography, behaviours and attitudes that may affect health. They develop skills in gaining entry into the community, analysing demographic data, community diagnosis, and research.

The research skills of students are further developed over the next four weeks by conducting an environmental sanitation survey. This culminates in a report on the sanitation and environmental factors that may influence the occurrence of disease. One objective of this activity is to engender in students a positive attitude to working with disadvantaged communities.

In addition to the survey, each group of students conducts a research project during the period of July-October. The research proposal is completed during the previous semester and is based upon a problem prevalent in the local community. Findings are presented at a workshop attended by all students, community leaders and health service staff as well as other interested parties.

Family attachments

The 'Family Attachment Scheme' enables the student to gain an in-depth understanding of the biological, psychological and social problems of the family. It is a form of placement in which a student is placed with a family in the community for a substantial period of time (often six to eight weeks) and spends perhaps one day each week with the family. The student learns about the socio-economic circumstances of the family, the social problems they face, and the psychological or medical problems of individual family members. While attached to the family, the student will engage in health education and link family members with the appropriate resources in their community. For example, an alcoholic may be linked up with a self-help group, a healthy adolescent may be lined up with a youth group or taught how to use the local library, or a diabetic will be taught how to manage her disease.

Phase three

At this point in their training, medical students are given increasing responsibility for patient care. During the last three years of their medical training, students spend approximately eighteen weeks in a community-based clinical clerkship. During their fourth year, they are assigned to selected rural hospitals for ten weeks. Students are supervised by general practitioners who have been trained as preceptors, and are visited once or twice per week by "circuit riders" (faculty members and/or physicians) from UNITRA. Activities at these rural hospitals include case clerking and presentations, participation in ward rounds, delivering patient care at the outpatient clinic and clinical skill development sessions. Students also rotate through the peripheral clinics attached to these hospitals, where they are involved in activities such as immunisation campaigns and monitoring the growth and development of children.

In the fifth and sixth years, students are placed in UCHPP clinics run by the Department of Family Medicine, for approximately five and six weeks respectively. The emphasis is on learning principles of family medicine and community health care, and assessment and management of common health problems in the primary health care setting.

Hospital-based activities

Buga (1998) pointed out that UNITRA students are given increasing responsibility for patient care from their fourth through sixth years of study. During this phase of clinical clerkship, small groups of students rotate through the different clinical disciplines, thereby gradually becoming familiar with most common clinical problems. Students spend sixteen to eighteen weeks in each of the major disciplines over three years.

Student Assessment

At UNITRA, assessment of medical and nursing students is both formative and summative. Through continuous assessment, students receive on-going feedback concerning their strengths and weakness. Feedback is given to students after each learning session (by tutors and peers), which helps direct their future learning. Summative assessment is done at the end of each ten-week block of tutorial cases (or ten-week clinical block in phase three) and through a series of summative exams at the end of each year.

The main types of assessment methods at UNITRA are assessment of the tutorial process, the Discipline Knowledge Status Examination, and the Individual Process Assessment. These methods together with their associated goals are described below.

Assessment of the tutorial process
This is done after each tutorial session, and refers to the assessment of students by tutors and other students, as well as self-assessment by the student. It also refers to the students' evaluation of their tutors. This feedback of group members to one another about their perceptions of each member's performance includes interpersonal skills and group process skills.

Discipline knowledge status examination
This is a written exam consisting of case scenarios that tests for content mastery across the traditional disciplines. The questions, which require short essay responses, focus on the basic science knowledge a student is expected to have acquired. The case scenarios are derived from the recently completed block of tutorial cases, so the content of questions focuses on recent learning issues. However, students do not know which clinical cases will be included in the exam nor which questions will be asked. The primary goal of this assessment is to measure the student's acquisition of biomedical science knowledge. It is done at the end of every 10-week block and at the end of the academic year.

Individual process assessment
The Individual Process Assessment (IPA) is a test of the individual student's ability to function completely on his own. It duplicates the process carried out in tutorial groups. The student evaluates a paper case, similar to one presented in tutorials, and discusses patient history, physical examination and laboratory investigations. The student then generates his/her own learning issues, studies to acquire new information and then, forty-eight hours later, takes an oral exam to assess what was learnt.

This assessment method tests a student's medical problem solving abilities, the acquisition and integration of a biomedical knowledge base, self-assessment and self-directed learning. It also tests skills in resource utilisation, time management and communication. The IPAs are held at the end of every 10-week block and at the end of the year.

Objective Structured Clinical Examination (OSCE)
As medical education moves increasingly away from hospitals to PHC settings, the assessment of skills becomes crucial to ensuring that students develop those competencies necessary for safe practice (Buga, 1998). At UNITRA, the OSCE is the specific exam that tests for competence in clinical skills, such as communication, history taking, physical examination and the investigation of laboratory data. The OSCE is administered at the end of every other 10-week block and at the end of the year.

Nursing students are assessed by similar methods to those described above. In addition to the main types of assessment already described, other forms of (continuous) assessment of both medical and nursing students include the use of logbooks and case records. The logbook includes a list of clinical procedures or lab investigations each student has to perform, assist or observe. Supervisors confirm a student has completed these activities by signing in the allocated space. They also provide evaluative comments on the student's level of performance. Each student also keeps a record of all cases he/she has seen, and writes individual and group reports to document certain community-based activities. The nursing department also uses reflective journals, in which students record all their experiences. All documents are assessed and contribute to the continuous assessment mark.

Community participation in assessment
Community members play an important role in the planning, implementation and assessment of community-based activities at UNITRA. Student learning objectives are discussed and negotiated with community members, who ensure that these activities will be of some benefit to the community. They contribute to the continuous assessment of students by giving feedback on the impact of student activities in the community. They also comment on the interpersonal skills of students, and the level of sensitivity, respect and caring which they display.

Institutional Considerations

Mission and goals
From its inception, the Faculty of Health Sciences at UNITRA was philosophically geared to offer a training program that would impart both the technical competency and social skills required to provide health care in rural and disadvantaged communities. Providing community service and conducting relevant research are also captured in the school's mission. The broad goals of the faculty have been clearly spelled out in a faculty brochure (Faculty of Medicine and Health Sciences, 1996). Their stated goals are to produce doctors and other health professionals who:

1. Are equipped with the knowledge, skills and attitudes necessary to deal with the health care problems of urban and rural communities, families and individuals in South Africa;

2. Are able to work in both rural and urban settings and are able to find personal and professional satisfaction in such work;
3. Are able and motivated to work in health care teams;
4. Are able to educate and motivate individuals, families and communities to take personal responsibility for their health;
5. Are able to think critically and creatively to deal with the health care problems of individuals, families and communities;
6. Have the necessary knowledge and skills to do research appropriate to the needs of the community;
7. Are equally committed to the promotion of health and the prevention of ill health, as to the treatment of disease, and are able to understand health care problems in their socio-economic and political context;
8. Are able to identify, analyse and manage clinical problems in order to provide effective, efficient and humanistic patient care;
9. Are self-directed, lifelong learners who will be able to adapt to change, keep up with developments in their profession, and who are motivated to acquire relevant specialised qualifications to meet the needs of the country and to advance their own careers; and
10. Display high levels of ethical and administrative insight, skills and integrity.

The Faculty also has clearly delineated strategies to achieve its mission and goals, most important of which is the development of sustainable partnerships between the university, community and government. Another strategy is to implement a system of joint appointments for all teaching staff, which will provide full faculty status to the teachers at community hospitals and primary health care centres.

Organisation and size of departments

The Faculty of Health Sciences has twenty-eight departments organised by disciplines. This includes departments traditionally found in a medical school, a department of nursing and a department of health promotion. The Faculty also includes a health personnel education unit and a primary health care research unit. Responsibility for the community-based medical education program is not limited to the departments of community and family medicine, as would be the case in traditional schools. Faculty members in all departments in the medical school are involved in the program in one way or another.

Similarly in the nursing department, all faculty are involved in the community-based activities of the students. In terms of the CBE classification system proposed by Magzoub (1994), both the nursing and medical programs can be said to be partnership-based. This means that responsibility for organising community-based programs is held not only by the Faculty of Medicine and Health Sciences or the university, but is a shared responsibility - in the form of partnership - between the university, communities, the government health service and other government departments.

Faculty rewards
There is no special reward system for the faculty. All faculty members in both nursing and medicine are expected to be involved (in one way or another) in the community-based programs of these two departments.

Admissions

Traditionally, training of medical students in South Africa has been restricted largely to the affluent white and Indian population. To address these inequities, the policy of the National Department of Health (NDOH) requires that student admissions reflect the demographics of the country. Initially, this policy met with some resistance from the deans of medical schools, who felt that the NDOH was infringing on their academic freedom. However, the NDOH subsidises up to 85% of the training of any medical student, and is therefore in a powerful position to ensure that its policy is implemented. The NDOH also provides bursaries (scholarships or financial aid) for black students to ensure that those who qualify for admission do not have to be excluded on a financial basis. Three categories of students have been prioritised for these bursaries, and include Africans; disadvantaged students from rural areas; and 'coloureds.'

The admissions policy of the Faculty of Health Sciences is in line with the above national policy and therefore is very affirmative. This means that students from disadvantaged academic and socio-economic backgrounds (the two have been found to be related) are given special consideration. The Faculty Health Sciences recognises that matriculation results are not a good predictor of academic success in medical school. It is felt that with the proper academic support even students who have barely met the minimum criteria can do well, if not better than those who have achieved high grades previously. Because the Faculty is a young one, it does not attract students from affluent families in the region, who generally tend to have higher grades. These students choose to study at older, more established medical schools in the bigger cities such as Cape Town, and the Faculty tends to attract the medium performers.

Selection criteria
The minimum academic requirement for admission to the medical school is a C aggregate (standard grade) on the National Matriculation Examination of South Africa. Entry requirements for the nursing degree are a matriculation certificate with an exemption from the matriculation board or its equivalent, and any two science subjects (e.g. physical science, mathematics, biology and geography); mathematics and physical science are recommended. In addition to these academic requirements, applicants for both nursing and medicine are interviewed to assess their suitability and motivation for the program, and the likelihood that they will stay in a rural area in South Africa after graduation.

Selection process

Community members and health service providers manage the selection processes for both medical and nursing students. Selection committees include academic faculty from the medical school or nursing department respectively; faculty outside the Faculty of Health Sciences also serve, based upon their expertise.

The selection committee for medicine screens applicants and those who meet minimum academic requirements are invited for an interview. The committee sets up three interview panels (again including community and service representation) to conduct the interviews. Interviewers use a checklist to rate the performance of applicants, and also write down evaluative comments or observations. The interview panels, some of which are more formal and structured than others, develop the interview questions. These are structured to elicit responses that enable interviewers to complete the checklist. They assess the personal qualities of applicants, such as communication skills, critical thinking, logical thinking, and problem-solving skills, as well as their motivation for studying medicine. An important aspect of the assessment relates to the applicants' involvement in and awareness of community issues or problems and their sense of social responsibility. Each interview panel then ranks its applicants, excluding those who are not suitable for admission.

A committee comprised of the chairperson of the selection committee, the dean or vice-dean, and the three panel leaders makes the final selection. In general, the committee selects the students who achieved the highest ratings from the three panels. To 'make up for' individual differences in ratings among the three panels, an equal number of students is taken from each list (e.g. the top 20 students from each panel).

The committee ensures that the policy requiring the student population to reflect the demographics of the country is met. This requirement has not presented any problems, since UNITRA, by virtue of its geographical location, mainly attracts students from financially, socially and academically disadvantaged African communities. Applicants also tend to come mainly from within the province and the Transkei region in particular. If the applicants recommended by the three panels do not fill the quotas, the committee selects individuals from the late applications pool, who in turn go through the same selection process as the other applicants. These late applications tend to be from individuals who have been turned down by the more established universities which would have been their first choice. This raises questions concerning their commitment to UNITRA's mission, its method of teaching, and focus on community service - all of this can impact on their motivation to learn. If selected, these students not only find themselves in another medical school, but in one where the educational program is very different to those of the traditional, established institutions! These issues were not explored in this study.

The selection process in the nursing department is similar to the medical school, as both are part of the Faculty of the Health Sciences. Of note, the nursing department screens

applicants very carefully to assess their motivation for nursing instead of medicine. If this is not done, they run the risk of admitting students who really want to practice medicine but do not meet the minimum requirements, and who view nursing as an entré into medicine. Their goal is, of course, to retain students in the nursing program. Where it is found that students meet the admission requirements for medicine and are unclear about their motivation for nursing, they are referred to the School of Medicine.

Recruitment
The Faculty has essentially three categories of applicants from which it selects its medical students: those with a full bachelor of science (BSc) degree or courses towards a BSc; those with a full matriculation exemption and a C aggregate; and students who have completed the Science Foundation Year Program.

UNITRA has introduced a Science Foundation Year Program because so few of its applicants are science graduates. Coming from extremely disadvantaged academic backgrounds, there are many students who do not have a full matriculation exemption and/or do not meet the criteria (e.g. they have an exemption, but an E symbol for math and science). These students are then referred to the Science Foundation Year Program to enrich their science background. Upon completion of this program, students reapply to the Faculty for admission, and go through the selection process.

Recruitment of academically qualified students who are interested in UNITRA's approach is not an issue in the nursing program. Traditionally, nursing has been a profession pursued by black women and in fact, historically, the health system has been nurse-driven; this is still true in the rural areas.

Students are recruited into the medical education program in a number of ways. The Faulty does not advertise its program in the media because it would not be able to cope with the influx of applicants. For example, the medical school receives more than 500 applications but has the capacity to admit only 60 students into the first year program. It could be said that the educational programs of the Faculty are publicised mainly by word of mouth through direct contact, especially at community meetings. A very strong motivating factor for those applying to the Faculty of Health Sciences appears to be the presence of medical and nursing students in the community who serve as role models for the young people living there. Programs are also advertised though Careers Exhibition Day, to which high schools in and around Umtata are invited.

Evaluation Systems

Program evaluation is an area in which UNITRA appears to be still grappling. Evaluation seems to focus mainly on the assessment of student performance as described in the section

on curriculum, and ongoing feedback from students and tutors of the tutorial process, as well as the COBES learning activities. The PBL approach also allows for on-going evaluation of the program, students and staff through a questionnaire that is completed by students and tutors at the end of each block, and evaluated by the Health Personnel Education Committee. Furthermore, an evaluation workshop is held every year, which gives faculty the opportunity to review the strengths and weakness of the programs in the Faculty of Health Sciences.

The Faculty has graduated two cohorts of doctors from its medical program (at the time of the site visit, no one had graduated fromthe nursing department), and is currently planning to evaluate these graduates. In collaboration with the University of New South Wales in Australia, it is planning to follow these graduates to assess where they are practising, what they are doing, how they are performing, and their perceptions of how their training prepared them for the conditions under which they are working.

Another area of evaluation in the Faculty relates to the goals of the partnership program. Both internal and external evaluations are conducted of the UCHPP, and include assessment of progress towards its goals as well as the relationships among the partners. Because its community-based education programs are partnership-based, these evaluations form an important part of the overall program evaluation in the Faculty of Health Sciences.

Research

The Faculty of Health Sciences takes a multi-disciplanary approach to research. A collaborative team from medicine, nursing and health promotion staffs the majority of projects. At this time, the Faculty considers developing greater research capacity a priority. In keeping with national guidelines, the research activities of the Faculty of Health Sciences are directed towards solving the priority health problems of the South African population. In particular, the focus of research in the Faculty is on the main health problems and development of local communities of the region and province. The general region and UNITRA's partnership communities are seriously underdeveloped in ways that impact the health of the community and the ability of UNITRA or anyone else to deliver needed services. The Ngangelizwe township - one of UNITRA's partnership communities - is located in Umtata and has no toilet facilities. While this is the exception within the city of Umtata, it is common in the rural areas. Toilet facilities, piped (clean) water and electrical service are development issues that clearly impact public health.

The three types of research conducted in the Faculty are community-based research, basic research and clinical research. Several epidemiological surveys are currently being conducted on the priority problems of hypertension, diabetes and trauma. The departments of obstetrics and gynaecology, pathology, physiology and radiology are currently

collaborating with UNITRA, the Medical Research Council of South Africa, CANSA Research Unit, and the universities of Cape Town and Stellenbosch on a number of projects concerning oesophageal cancer. The prevalence of oesophageal cancer in the Transkei region is among the highest in the world. The research unit was established at UNITRA in 1998 to conduct research on oesophageal cancer in the Eastern Cape and to provide a registry of cancer patients in the region.

Trauma is both a local and national problem, primarily as a result of the high rate of motor vehicle accidents and violence throughout the country. A research project that aims to establish the main causes of trauma, and whether trauma is associated with drug abuse, will be implemented as soon funding is received. This study also aims to examine the ways in which domestic violence can be reduced. It will be linked to various educational programmes and will be implemented by the Faculty in collaboration with the community and the police.

Another study involves screening for hypertension and diabetes in a rural community about 30 km from Umtata. The majority of people in this community work in a timber factory. Those who have diabetes or hypertension can be diagnosed at an early stage and referred for treatment.

Other research areas that reflect both local and national needs are AIDS and tuberculosis. UNITRA is planning to establish an AIDS centre which will provide comprehensive services to people in the region. It will include long-term care for people living with AIDS provided in collaboration with other community-based organisations such as the Hospice Association.

The departments of general surgery and forensic medicine are currently conducting another important research project on occupational diseases. Many migrant labourers who have worked in the mines develop occupational diseases such as asbestosis, chronic obstructive lung disease and tuberculosis. UNITRA is documenting the complications these patients have been developing over the years. An important facet of the project is generating a full report capable of ensuring that affected persons receive financial compensation.

In addition to the above projects, students perform basic research directly related to the needs of the communities in which they work. Examples are assessment of immunisation coverage, prevalence of diarrhoeal disease, and other common conditions. These community assessments are designed to collect information necessary for developing and implementing relevant health education and promotion programs. When students present their projects to faculty and other students, representatives from the community and Ministry of Health (MOH) are present as well. In this way the academic, service and community partners are able to develop collaborative strategies to address identified problems and implement recommendations.

Service

At UNITRA, each clinical department in the medical school has an on-going service commitment. All faculty, including those in the community medicine department teach and/or supervise clinical sessions, either at Umtata General Hospital or in the community-based PHC centres. Even the dean of the Faculty carries both a full teaching and clinical load (as head of the department of surgery), which makes UNITRA the only medical school in the country with a part-time dean.

The nursing faculty do not provide clinical services in hospitals or health centres, but nursing students are placed in these facilities to learn and gain experience by assisting with the provision of nursing services. Faculty supervises these clinical placements, as well as a number of community-based student projects. The latter could be a health promotion project or campaign that may be a follow-up to a research study indicating the need for community education or raising awareness. Through the supervision of these community projects, which are always directed at meeting identified community needs, nursing faculty feel that they too render service to communities.

Generally, the service ethos in the Faculty of Health Sciences has prevailed since its inception. It represents the response of a historically black and disadvantaged institution to the socio-economic and political context from which it evolved. In particular, the extreme poverty with its consequent poor health status, the lack of adequate health services in the region, and the shortage of health personnel, demand the full involvement of all faculty - at least in the provision of health services. Hence all faculty, when appointed, are interviewed by a panel on which the Ministry of Health is also represented. When they join the Faculty of Medicine and Health Sciences, as indicated so aptly by one interviewee: "...They clearly *know* [interviewee's emphasis] that their commitments are research, teaching and service. There is no way you can delete any of these . . . if you do, it will be noticed".

While service to communities has been central to the Faculty's mission since its inception, it can be said that this commitment was considerably strengthened with the advent of the Community Partnerships Initiative in Health Personnel Education (CP/HPE). CP/HPE is a national initiative, funded by the W.K. Kellogg Foundation, to develop innovative models of health personnel education at seven selected universities in South Africa, including UNITRA. The broad aim of the initiative is to develop health professions education programs that are responsive to community needs and appropriate in terms of the socio-economic conditions of the country. The achievement of this goal required the formation of partnerships between academic institutions, health service providers, and communities. While UNITRA's Faculty of Health Sciences had been working in partnership with the government's health service prior to the inception of the CP/HPE initiative, such partnerships with communities were lacking. Mfenyana (1992, p.6) pointed out that: "The Kellogg Initiative has helped us recognise communities as equal partners".

Community Involvement in the Institution

Through the CP/HPE initiative, the UNITRA Faculty of Health Sciences developed formal links with both the Department of Health and four communities in the Umtata region. Because the participation of communities is considered to be central to the implementation of community-based health personnel education programs, the development of the partnership, its mission, goals and achievements have driven the character of community involvement at UNITRA.

UNITRA Community Health Partnership Project (UCHPP)
The serious shortage of community-based health facilities in the region limited the services available to citizens as well as the training opportunities for students. The Faculty of the Health Sciences therefore welcomed the opportunity provided by the Kellogg initiative. Taking the lead within UNITRA, it established a partnership with the then Transkei state Department of Health, the municipality of Umtata, and four local communities in the former Transkei region. At the beginning, a major priority of this partnership was establishing PHC centres in these underserved areas, thereby enabling community-based medical and nursing education - not to mention improving access to care for the residents. The completion of these centres, which are now fully functional, can be regarded as one of the most significant achievements of this partnership.

The *vision* of the UNITRA Community Health Partnership Project (UCHPP) is to improve the health status and quality of life of underserved communities in Eastern Cape Province through education, research and service. To give expression to this vision, UCHPP has, since its inception in 1991, worked very hard towards achieving the following goals (UCHPP, 1997):

- to implement community-based education, research, and service programmes that benefit the community as well as provide prospective health personnel with the experience they need;
- to provide an accessible, affordable and equitable health care system for the underserved; and
- to facilitate community development activities in the four partnership communities.

UCHPP has established four academic PHC centres in the partnership communities. A primary health care project of the provincial department of health is being piloted at these health centres. The aim is to offer comprehensive, continuous, community-based, holistic and co-ordinated service to communities. The project is co-ordinated by the head of the Department of Family Medicine and its senior faculty is in charge of the health centres. All physicians from the department now work at these health centres instead of the hospital. Furthermore, nurses, health educators and social workers have also been deployed from the hospitals to the health centres. Faculty members from other departments of the medical school also work at the hospital or its out-patient clinics.

In addition to providing health services to these underserved communities, the Faculty of Health Sciences is clearly, through the partnership, addressing other development needs of the community. There is a well-developed understanding that the health status of communities is not determined by the provision of health services alone. The basic needs of these communities - access to education, adequate sanitation, safe drinking water, and adequate nutrition are also major causes of ill health. Partnership activities - which include students - have implemented a number of projects and programs to address these needs.

The four partnership communities are Mbekweni, Mhlakulo, Baziya and Ngangelizwe. The latter, a sprawling peri-urban area, is the only community situated relatively near the university. Living conditions in Ngangalizwe are worse than those in the three more rural partnership communities. Proper sanitation and waste disposal are major problems and the community has identified a sanitation project as a priority. This project is still in the planning stages. Its implementation requires active lobbying and collaboration with relevant government departments since it is a big and costly undertaking.

Priorities identified by the Mbekweni community include skills training for youth and the training of community health workers. Because of unemployment and difficult access to fresh produce, food gardens have been established to reduce the prevalence of chronic malnutrition in the area.

In Mhlakulo and Baziya, access to safe drinking water has been identified as a prerequisite to improving the health status of residents. Efforts between the Department of Health and the community to source water from the mountain and reservoir to the PHC centres in these communities has been successful. This project not only provided fresh tap water at the centres but also created employment opportunities for community members.
In both Mhlakulo and Baziya, village health workers have been trained to complement the work of the PHC centres. To address the problem of unemployment in these communities, the UCHPP has facilitated skills training for income generation in areas such as carpentry and brickmaking. In Mhlakulo, the baking income-generating project has been given a contract to supply a local school with fresh bread, and in this way it makes a contribution towards the primary school nutrition program.

The above partnership projects again indicate that service or community-based activities of faculty members are indeed aimed at improving the health and well being of disadvantaged communities. To achieve this level of community responsiveness requires moving beyond the medical paradigm and truly embracing the PHC approach. Therefore, the emphasis is not only on the provision of effective and accessible health services to previously underserved communities (to which all faculty members in the medical school have a formal, long-term commitment), but also on the long-term development of the community. Medical and nursing faculty (and students) also work with other relevant university departments and government bodies to address the identified health and development

priorities of the partnership communities. All program activities (education, health service or development related) are planned, implemented and evaluated in conjunction with the partnership communities. Their participation has been institutionalised and is supported in a number of different ways, including their links to the Eastern Cape Department of Health, development projects and/or program committees based in the community, and various university structures.

Community participation in university structures

At UNITRA, the four participating communities are formally involved in the activities of the academic institution at a number of levels. 60% of the UCHPP Board of Directors are community residents; university personnel and government health service representatives also participate. The board is responsible for determining policy directions for the partnership. However, the board does not appear to have real power regarding curriculum-related decisions; these decisions are made by internal Faculty structures. However, community representatives sit on all key Faculty committees, where they have the opportunity to influence decision-making. This is no small accomplishment and the Faculty is one of the pioneers in obtaining community participation in university structures.

Another unique feature of UCHPP is that in addition to the academic director, it also has a community co-director, who is based at UCHPP's university office. Again, this demonstrates that the university is prepared to open its doors to community people. This space is offered to the community at no charge, and the implementation of UCHPP policies, decisions and day-to-day activities are co-ordinated here.

Community representatives participate in major educational committees in the Faculty of Health Sciences, including appointments, student selection, health personnel education and the community-based education and service (COBES) committee. They play a central role on the selection committee, where they provide valuable input concerning the suitability of applicants for admission. In particular, community representatives are often best able to comment on the communication and interpersonal skills of applicants, as well as their level of community awareness and sense of social responsibility.

Community representatives from the partnership communities have also been requested to identify students from these disadvantaged communities for admission; 1999 appears to be the first year partner communities were involved in this way. The Faculty intended to involve them in this way for several years; the delay was ascribed to several factors. Asking communities to identify students was problematic as communities then expected students would return to work with them after graduation. These four communities have overwhelming needs and their expectation is understandable. However, it becomes even more complicated: Students who wished to return to their community to practice could not be guaranteed a university or government health service position. In light of the new National Department of Health policy requiring compulsory community service for

medical graduates, the communities expectations are even more difficult to meet: While policy requires interns to work in underserved rural communities, interns are allocated to rural areas by a national committee and neither the Faculty nor UCHPP has control over placement.

To facilitate the effective participation of community members in university structures, an extensive program of *capacity building* was implemented. This included workshops on how to run effective meetings; the roles and responsibilities a chairperson, secretary, and treasurer; minutes-taking and teambuilding. Travelling seminars have been arranged for communities to visit other community partnership programs in South Africa, and some committee members have had the opportunity to visit community-based health education programs in the USA, Egypt and Kenya. All these activities, and the mere interaction among partners in a variety of settings, have been extremely empowering for community members. The skills learnt and confidence developed through the process of participation has empowered them to perform their roles (in particular those of the academy) effectively and with the utmost commitment. Moreover, the benefits of their involvement extend far beyond the walls of the Faculty of Health Sciences, and bring their communities the promise of a better life.

Faculty Development

The faculty development program in the Faculty of Health Sciences has two foci: developing the knowledge and skills of faculty as educators, so they are able to successfully implement the innovative curriculum; and encouraging faculty to acquire higher degrees (e.g. PhD in Nursing), since an important priority for the Faculty of Health Sciences is to develop its postgraduate programs.

The teaching skills of the faculty are developed through on-going pedagogical workshops, facilitated by consultants from other schools that have implemented problem-based learning or community-based education. Some are experts from universities with which the Faculty has formal linkages, for example, the University of New South Wales. Faculty from both the medical and nursing schools at the University of New South Wales have spent extended periods of time at UNITRA to assist staff with all aspects of implementing a problem-based curriculum - from developing the clinical and paper problems used in the curriculum to fine-tuning student assessment procedures. In the nursing department, the University of New South Wales experts have played a significant role in developing the research capacity of faculty, particularly in qualitative research methodology.

Faculty is encouraged to attend conferences and workshops both locally and abroad, and to visit other schools with innovative problem-based or community-based programs. Through these activities, faculty have been able to learn from the experiences of others and strengthen their capacity to deal with the many challenges of curriculum innovation.

Ministry of Health

The relationship of the Faculty of Health Sciences with the various departments of health has been expounded upon in the previous two sections. In summary, the Faculty of the Health Sciences had strong links with the Ministry of Health (MOH) of the Republic of Transkei, prior to the transition to a democratic South Africa and this relationship continues with the MOH of Eastern Cape Province. The Faculty budget (including salaries) is now subsidised by the provincial department of health which is committed to redressing the inequalities of the past.

It is clear that the Faculty of Health Sciences has the unwavering commitment and support of the new democratic government. It works very closely with the National Department of Health, and a number of faculty members serve on national committees. The Faculty, through UCHPP, has worked with the Eastern Cape Department of Health, and with individual communities to establish four new community health centres. The health department provides each community health centre with equipment, drugs, a vehicle and many other things to each community health centre; it also plays an active role in the development of sustainable Community Partnerships in Health Personnel Education.

Other Educational Programs

When the medical school was established, it was registered as an undergraduate school; consequently, it was not possible for the school to offer postgraduate programs in medicine. The only postgraduate program currently offered by the medical school is a Masters in Family Medicine. However, several years ago the South African Medical Council granted the school "satellite status". This meant the school was only granted one-year recognition for postgraduate fellowships.

After completing the first year (primary) examination, postgraduate students have to register at other South African universities to complete their speciality residencies. They have to compete with other graduates for these posts, and universities tend to prefer offering residencies to their own graduates. This has resulted in a situation where only 6-8% of UNITRA students are registered in postgraduate studies. In 1998, the medical school entered into an agreement with the University of Cape Town to reserve a certain number of registrar posts (speciality residencies) for individuals nominated by UNITRA. The provincial government sponsors all nominees, and in 1998 three were UNITRA graduates. Once sponsored by the provincial administration, a student is obligated to return to the region, thereby creating more indigenous specialists and helping to reduce the current dependence on foreign doctors (more than 90% of the staff in the medical school are foreign graduates). The Faculty hopes to enter into this arrangement with two other South African universities as well.

The nursing department has, however, been offering a number of postgraduate courses as well as a degree for registered nurses and a Masters in Nursing for approximately twelve years. These courses have considerably strengthened the capacity of nurses (who form the backbone of the health care services) in the region, particularly in the fields of nursing education, management and community health. Furthermore, the Faculty arranges seminars and workshops (especially when they have visiting lecturers) to which the service providers from the clinics and hospitals are invited.

Leadership

Leadership in the Faculty is seen to be a collective endeavour. The dean is the head of the Faculty, and is elected by its members every two years. It has always been the UNITRA tradition to elect deans. This makes the dean accountable to his/her respective Faculty and not to university management and it is a policy that enjoys widespread support among faculty members. While it is a good policy - especially if it is placed within the historical context of the university - it appears to hold certain disadvantages for the Faculty of Health Sciences, where an appointed full-time dean is considered more appropriate. With the current plans to restructure the university, one of the key changes will be the implementation of a system of appointed deans. Furthermore, the Faculty is also proposing the appointment of two vice-deans. It is believed that these changes within the university would considerably strengthen the management and leadership capacity of the Faculty of Health Sciences.

The democratic tradition of the university extends to the management of the Faculty of Health Sciences, which is a shared responsibility of the faculty executive committee. This committee is comprised of the heads of all departments, many of whom are expatriates. Because they perceive themselves to be guests in South Africa, they are sensitive to issues of a controversial and/or political nature, such as admission and recruitment of foreign graduates, and tend not to express their opinions in this regard. These situations require the dean to take greater responsibility for decision making, since he is able to rely on only the participation of a few South African-department heads. Decision-making within the Faculty is otherwise very democratic. It is facilitated by the participation of its members on the various Faculty committees/structures, many of which include representation of service and community partners.

In addition to their commitments within the Faculty, members also have many other leadership roles. The current dean has been nominated to a number of national committees including the Internship Allocations and Training Committee of the Health Professions Council of South Africa, which develops guidelines for the training of medical interns and the Ethics Committee of the South African Medical Association. He is also a member of the College of Medicine of South Africa. At least two Faculty members have been appointed to key positions in the National Department of Health in recent years. Others are involved on its strategic committees such as human resources or provide consultant services.

In spite of the many challenges that have threatened its existence right from the start, the UNITRA Faculty of Health Sciences has become a leading institution in the community-based training of health personnel. It is indeed a model for institutions wishing to produce graduates with sensitivity towards community needs and a sense of civic responsibility. Moreover, it is an example of how an academic institution, through its community-based education program, can make a contribution to the national priorities of reconstruction and development.

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Faculty of Medicine, University of Gezira

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The Republic of Sudan, situated in northeastern Africa, is the largest country of the African continent. Its total area of 2.5 million sq. km and population of 30 million is divided into 26 states. The economy of Sudan depends mainly on agriculture. The University of Gezira Faculty of Medicine (UGMS) is situated in Wad Medani, the capital of the state of al Gezira, a fertile area between the White Nile and the Blue Nile with a population of about 3.2 million (Population Data Sheet for Sudan by States, 1999).

There are 13 faculties of medicine in Sudan and UGMS is the second oldest. It was established in 1975 and students were first admitted in 1978. It adopted an innovative community-oriented, problem-based integrated curriculum from its inception - the first of its kind in Sudan. Four other medical schools in Sudan have designed their curricula on the Gezira model. In the words of its vice-chancellor, not only the medical school, but the University of Gezira itself is based upon a philosophy of "community orientation".

Each year, 100 students are admitted on rank order based upon the results of the National University Entrance Examination conducted by the Ministry of Education and Scientific Research. Students apply to the Admissions Committee for Higher Education at the Ministry of Education and Scientific Research in Khartoum. In their applications, candidates list their preferences in order of priority. Final placement decisions are based upon examination scores and the preference stated by the student. Therefore, UGMS has no authority over the selection of its students. Generally, Sudanese students prefer to gain admission to the oldest medical school in Sudan, the Faculty of Medicine, University of Khartoum, which has a traditional curriculum. Nevertheless, there are some who specifically opt for UGMS due the recognition it has received for its community-oriented curriculum and as a result, admission to UGMS is increasingly being sought. Since UGMS is a state-owned institution, fees are not charged to selected students; however, a few fee-paying students are admitted, usually children of expatriate Sudanese.

Training Sites

UGMS uses the state hospitals and research institutes in Wad Medani as its clinical training institutes. The three main institutions are:

1. The 900-bed **Medani Teaching Hospital** serves as the referral hospital for five states in Sudan (al Gezira, Sennar, Blue Nile, White Nile and al Gedaref states). It has 50 specialist consultant staff members, including ten general physicians, 11 gynaecologist/

obstetricians, seven general surgeons, six ophthalmologists, five dermatologists, three pulmonary physicians, two psychiatrists, two otolaryngologists, two urologists, one orthopaedist and one anaesthesiologist. It offers renal dialysis, endoscopic surgery, coronary care and intensive care. An endoscopy unit for diagnostic purposes and a renal transplantation unit are being planned.

2. The **Medani Children's Teaching Hospital** was established in 1987. The hospital admits 10,000 children per month with a total annual patient turnover (outpatients and in-patients) of about 50,000 children. Both general paediatric and paediatric surgery services are available in hospital. Training of paramedics in immunisation, diarrhoeal and respiratory diseases, nutrition and maternal/child health programs (including infant mortality reduction) are carried out for the major national program of Integrated Management of Childhood Illnesses (IMCI).
3. The **Blue Nile Research & Training Institute** is a continuation of the Blue Nile Health Project established in 1980 with international funding from the United States, the United Kingdom, Japan and Kuwait as well as with funding from the government of Sudan. The institute was initially established with the intent of containing water-borne diseases, i.e., malaria, bilharzia and diarrhoeal diseases. These diseases are common in the highly irrigated Gezira region. Today, the institute mainly offers training and research in malaria with a higher diploma (postgraduate) in malariology for medical graduates and public health officers. The University of Gezira confers these degrees.

Other training institutes include the Faculty of Laboratory Sciences, the Department of Nuclear Medicine, and the Department of Oncology & Radiotherapy. In addition, two World Health Organisation collaboration centres contribute to the overall training of medical and health care personnel at UGMS. The Educational Development Centre (EDC) conducts workshops in medical education and curriculum development. The Primary Health Care & Health Education Centre of the Department of Community Medicine conducts master's level and diploma courses in primary health care management.

The EDC has been the resource centre for curriculum design for several medical schools in Sudan and Yemen. Workshops on curriculum design have been conducted for the faculties of medicine at al Fasher (West Sudan), Sennar and al Gedaref (Central Sudan), University of Africa (Khartoum) and the Faculty of Medicine at the University of Sciences and Technology in Sanaa, Yemen. The EDC supports regional program activities in Saudi Arabia, Bahrain and Iraq. It has also been providing assistance and materials for curriculum innovation in Zambia and introducing community-oriented, problem-based learning curricula in Pakistan.

The UGMS postgraduate studies program was initiated in 1993 and is coordinated by the Department of Postgraduate Studies. The department offers five doctors of medicine (MD) programs (general medicine, general surgery, obstetrics/gynaecology, pathology and paediatrics) and five master of science (MSc) programs (dermatology, sexually transmitted

diseases, parasitology, physiology and biochemistry). At present, all candidates have been from Sudan and many of the junior specialist faculty members at UGMS have obtained their postgraduate qualification through these programs. It is planned to extend the postgraduate programs so students from the African region and beyond can be accommodated in the future.

The Curriculum

The curriculum is described by faculty members as a community-oriented and community-based, student-centred and problem-based, integrated learning program. The basic, clinical and social sciences have been integrated into the curriculum from its inception. Hence, the UGMS has twenty years experience in community-oriented medical education (COME), community-based education (CBE) and problem-based learning (PBL) and has been the pioneer institution in the region. The success of this curriculum is reflected by the fact that many regional medical schools seek to emulate UGMS. UGMS has assisted in the PBL curriculum design of several medical schools in Sudan as well as a few in the WHO East Mediterranean Region. UGMS has found that its curricular approach has much merit in the Sudanese and Wad Medani settings. During the early years, UGMS had to contend with and overcome sustained opposition from the university administration as well as other medical schools in Sudan and the region. Further, while implementing its curriculum and teaching program, it confronted the negative attitudes of the medical profession and the community, poor co-operation from health authorities, and resource constraints.

Medical students are exposed to experiences in the community throughout their course of study. The course consists of two semesters per year conducted over a period of five years, totalling ten semesters. The second semester each year is the summer semester.

The Community Course

CBE accounts for about 30% of all curriculum activities and is expected to serve two main functions: provide opportunities for collaboration with the community and government, thereby facilitating university-government partnerships; and prepare students for a community-oriented career in medicine. Though CBE is included throughout the curriculum, a greater emphasis is made during certain modules (See Table I). The learning methods used in this course are didactic lectures, seminars, PBL, fieldwork and group exercises with student presentations.

Table I. Modules in which community-based education is emphasized

Modules	Semester(s)	No. of weeks	Credit hours
Introduction to Medicine	1	2	2
Field Training & Rural Research Development	2, 4 & 6	4, 5 & 4	4, 4 & 5
Doctor and Society	3	3	3
Family Health & PHC Centre Practice	4, 5, 6 & 7	continuous	3, 3, 3, & 3
Rural Residency	6	4	8
Primary Health Care Clerkship	7, 8, 9 & 10	4, 4, 4 & 4	5, 5, 5 & 5

The ten-semester program is implemented in three phases: Phase I, introductory courses; Phase II, system courses; and Phase III, clerkships. The ten semesters are completed in a total of 105 weeks. CBE is emphasized during 78 of these weeks (74%).

At UGMS, the CBE approach is longitudinal: Students are assigned to a village at the beginning of the curriculum. They will remain in their assigned village for the duration of the program. Three areas in Gezira have been selected as field training sites. Each area represents a different stage of development and together they provide a spectrum of rural development and its inherent problems. This allows comparative studies to be performed. Community-based sites include:

- Villages across the Blue Nile River that are seriously underdeveloped and where basic amenities are poor. There is hardly any development activity in these villages.
- Villages in the Rahad area where development is just beginning.
- Villages in the Gezira and el Managil areas where development has taken place over many years. These areas have now generated specific problems of their own.

Module I: Introduction to medicine

During this module, students are introduced to the underlying philosophy of the UGMS training program. Each student has to collect basic information and data about a health or a health-related problem facing their village. They are expected to write a descriptive report on a selected problem, giving their evaluation and view of how it affects the well being of the family and the community. They are also expected to list in general terms the

skills and attitudes they need to acquire so as to be able to identify and manage the problem. During this period, students are also exposed to a variety of teaching and learning methods. These include: the rationale and concepts of PBL and the systematic approach to problem solving; principles of group dynamics that contribute effectively and positively to group activity; use of the library to extract material and information to support their investigation; and the use of available audio-visual teaching material.

Students are provided with the required facilities and are supervised by the faculty as well as by specialists from disciplines outside of medicine (i.e., agronomist or economist). At the end of the course, their attitudes are assessed by an opinion questionnaire whereas their knowledge is assessed by multiple choice questions (MCQ), written essay questions (WEQ) and student reports.

Module II: Field training research and the rural development program
This program is conducted in three blocks during the summer semesters of the first, second and third years. The objectives of this program are to provide practical field training for students in rural areas; develop an understanding of the multi-sectoral nature of health and disease; give students experience in interdisciplinary activity and team work; open up research opportunities for students and faculty; and engage the university in rural development efforts.

During **Block I**, students collect basic demographic information and other data from the village (location, environment, available amenities, agricultural and socio-economic conditions, customs and traditions); identify specific problems; and plan and design projects to investigate the problems with a view towards evolving solutions. In **Block II**, they collect data for their projects; statistically analyse their data; draw conclusions and make recommendations; prepare an action plan to solve their problem; and implement their plan, using all resources available to them. In **Block III**, they follow up on their action plan, make a preliminary evaluation of outcomes; and submit a project report that will be evaluated during their final semester. Students arrange seminars during these semesters so that information, ideas and experiences are discussed and exchanged. Financial resources needed for this program have been obtained from the Regional Ministry of Health, local government entities, community organisations and international agencies.

The Field Training Research and Rural Development Program is evaluated by the students and the people in the villages through 'opinionaires' and discussions. The students are evaluated by assessing their attendance, self-evaluation, peer evaluation, seminar performance, presentations, supervisor reports and final reports.

Magzoub & Schmidt (1998) developed a causal model for CBE and after minor adaptations it was tested on a group of 106 students and the teaching staff. The students rated each other on leadership, interaction with the community, subject-matter contributions and effort.

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Teaching staff assessed the readiness of the community to collaborate. Student achievement (or measured outcomes) was assessed by short essays and judgement from the staff and the community. The results of the survey showed that *"leadership had a potent effect on the measured outcomes"* and to a lesser extent on *"the readiness of the community to collaborate with the students"* (Magzoub & Schmidt, 1998).

Module III: Doctor and society
During this module, students are introduced to the basics of medical sociology; introduction to psychology; family, marriage and their effects on disease; socio-economic aspects of disease; traditional medicine in Sudan; functions and responsibilities of health personnel; and the medico-legal aspects of the practice of medicine. Ethics in medicine including the doctor-patient relationship, the Hippocratic Oath and the Geneva Conventions are also covered. Learning methods include didactic lectures, seminars, group work and field visits. Evaluation methods include written essay questions (WEQs) (80%), seminars (10%) and attendance & participation (10%).

Module IV: Family health & primary health care centre practice
This module is a continuous program conducted in four phases over four semesters beginning with the fourth semester. It is offered to enable students to play an active role in the delivery of primary health care (PHC) at the level of the family and to ensure continuation of that service at the health centre. The aim of this module is not only to improve the quality of service provided, but also to specifically intervene at the *"atrogenic gap"* between the family - where medical problems can be detected early - and the health centre - where active intervention with social and therapeutic management is instituted. The module is structured on 30 detailed objectives that include the basic principles of PHC, epidemiological principles, statistical concepts, study of common tropical African diseases, sanitation, preventive health, social-cultural-economic variables affecting health, health education and community participation in health.

Each phase of the module has three instructional components: students perform increasingly more complex clinical procedures; students practice these competencies during the continuing family visits; and students follow lecture schedules and participate in seminar programs and presentation of family health reports.

The health centres are important clinical settings during this module. The health centres consist of eight interdependent sections that serve different needs of patients who visit the centres. They are: doctor's consultation room, medical assistant's consultation room, the antenatal clinic managed by a health visitor,[1] the infant/child health clinic, a diagnostic

[1] The health visitor is an elderly woman trained in all aspects of antenatal care including assisting in normal delivery.

laboratory with basic amenities including a binocular microscope, special 3-4 bed male and female rooms for intravenous quinine treatment,[2] medical insurance and documentation section, and a dispensing pharmacy with antimalarials, anthelminthics, antipyretics and antibiotics. The students participate in the health centre activity initially as observers, then as assistants and later in direct clinical assessments and patient care services. Also during the fourth module, students are assigned to a family for an extended period of time. The student looks after the health needs of the family, following them until the end of the clinical clerkships in their final year.

Module V: Rural residency

This module is conducted during the sixth semester and is four weeks in duration. The main objective of this course is to expose the student to the *"real environment of a rural hospital and community"*. The students obtain first-hand knowledge and experience in meeting the challenges of working in an environment that has constraints in physical (health care facilities and equipment) and human resources (doctors and trained paramedical personnel). In addition to understanding the organisational structures and administrative aspects of a rural hospital and health care centre, students also see how laboratories, wards and operating theatre facilities are maximally utilised. They are also exposed to "off-hospital" field activities such as medico-legal functions and community activities that include collecting demographic and statistical data regarding economic and social profiles and political, historical and cultural backgrounds that are useful in conducting a KAP (Knowledge, Attitudes, Practices) study on a selected topic.

The instructional methods include guided learning, self-learning, practical training and community surveys. The students are evaluated based upon the report of the rural hospital doctor, final reports submitted and presentations made by students.

Module VI: Primary health care clerkship

The Primary Health Care Clerkship is conducted during the last four semesters of the medical course and occurs concurrently with the clerkships in clinical subjects - medicine, surgery and obstetrics/gynaecology. During the clerkship, students apply their clinical knowledge and skills acquired during their clinical training. The students are expected to participate in maternal & child health (MCH) and family planning services, immunisation programs, assessment of nutritional status of "at risk" groups in the community, identifying endemic and communicable diseases and assessment of environmental, sanitation and water supply issues that affect health.

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[2] 20-30% of the blood samples screened by the health centre laboratories daily are found to be positive for falciparum malaria.

The instructional settings are the PHC unit, dispensaries and health centres. Community physicians, paediatricians, obstetricians and even sociologists and economists from the University of Gezira are recruited to assist the students in their learning activities. Evaluations are based upon the products of group and individual work and performance (10%), report of individual students on their work in the PHC setting (40%) and written examinations that consist of WEQs, MCQs and short questions (50%).

Table II. Modules with a substantial component of community-based education

Modules	Semester(s)	No. of weeks	Credit hours
Man and his environment	1	7	5
Zoology & introduction to medical entomology	1	3	2
Growth & development	2	5	6
Introduction to the study of disease	2	8	8
Blood & blood related disorders	3	5	4
Problems of the gastro-intestinal tract (I & II)	5	10	13
Clerkships in medicine & surgery	7, 8, 9 & 10	112	112
Clerkships in paediatrics & obstetrics/gynaecology	7, 8, 9 & 10	72	72

Modules with a Substantial CBE Component

There are other modules that include substantial components conducted in a community setting. Each of the modules listed in table II is designed to accentuate community aspects as appropriate. This is done when dealing with the theoretical aspects of environmental factors, human growth and development, blood disorders and gastrointestinal tract problems. This CBE is in addition to the community-based clinical clerkships.

In summary, the overall course time (in weeks allocated), taken together with the credit hours assigned to CBE modules and activities as listed in tables I and II, show unequivocally that UGMS conducts a comprehensive community-based and community-oriented medical course.

Student and Graduate Perceptions

UGMS graduates interviewed expressed the view that the Regional Ministry of Health prefers UGMS graduates to others from Sudan as they are more enthusiastic in serving the rural areas of Gezira. Medical graduates from other schools tend to be more hospital-oriented and less inclined to serve in the community or in rural hospitals or health centres.

Medical students expressed similar sentiments. The students enjoyed the medical course as it was *"not confined to lectures within walls"*. They also said that they learn to *"work with minimum facilities"*; they discovered a *"new image of being a doctor - helping people and decrease suffering"*; it made them *"think about people not about ourselves"*; and they got a *"better understanding of socio-economic factors in ill-health"*. Thirteen of the 22 medical students (60%) interviewed said that they wish to pursue a community medicine- based career. They were nevertheless aware that *"more realistic expectations may change their views later"*. They also commented that the sense of achievement in a community medicine career is long term and not felt immediately.

Doctors participating in UGMS postgraduate training programs spoke of their impressions of the curriculum and its vision in more elaborate terms. They found the exposure to the rural communities a new experience as many came from urban areas. Besides the epidemiological skills they developed during their community course, they found that the course provided them with a unique opportunity to *"get to know the life of the people"* and interact with many persons from other health-related academic disciplines. The postgraduates said that they developed awareness that *"doctors can serve patients better when they understand the problems of patients"* and also that *"medicine cannot solve all health problems of the people"*. They also reported that participation had increased their sense of commitment to help uplift the health of the community and enhanced the *"hard-working socially-responsible doctor image"* of UGMS graduates. They also said that UGMS graduates can be distinguished from other Sudanese medical graduates even in a clinical hospital setting as they *"go deeper into the socio-economic history of the patients"* admitted to the wards and dedicate more of their time to talk with a patient and convince him/her of a necessary course of treatment to alleviate his/her medical condition. Only one out of the 11 postgraduates interviewed wanted to be a community physician but the other ten said that they routinely take more in-depth social histories of their patients, a quality they developed due to their community-oriented medical training.

The interaction with this cross-section of UGMS students, graduates and postgraduates brought out a general consensus that the community-oriented, community-based UGMS curriculum has been able to create a more 'community-conscious' doctor. The UGMS graduates were particularly gratified with these positive attitudinal achievements of the curriculum. Their sense of satisfaction was reflected in the spontaneity and exuberance with which they expressed their views.

Cooperation with the Regional Ministry of Health

Though it had its early problems, UGMS now has the full co-operation of the Regional Minister of Health. The minister observed that graduates of UGMS contribute more to the health needs of Gezira Province than graduates from other medical schools, as they are more committed and concerned about the community and preventive aspects of health. Therefore, they were more inclined to recruit UGMS graduates to the service of the Regional Health Ministry. The confidence of the Regional Health Ministry in the UGMS faculty is such that UGMS clinical academic staff hold leadership positions in the main hospitals in Wad Medani: the professor of medicine is the director of the Blue Nile Research & Training Institute; the associate professor of paediatrics is the director of the Wad Medani Paediatric Hospital; and the head of the department of medicine is the director of the Medani Teaching Hospital - all of which are administered under the Regional Ministry of Health.

This co-operation between the medical school and the Regional Health Ministry has facilitated an increasingly important role played by the UGMS faculty in the delivery of health services and in the definition and administration of health policy in the province. Further, there is majority representation of UGMS faculty in the Regional Ministry Health Advisory Board. The new health programs for the region developed by the ministry are mostly managed and implemented with leadership provided by the UGMS faculty. The ministry and UGMS faculty members jointly manage many current Regional Health Ministry ventures. These include the new WHO-recommended approach to 'Integrated Management of Childhood Illnesses' (IMCI), the Council for Psychiatric and Mental Health and the Emergency Unit for Epidemics and Catastrophes. The Minister of Health as well as UGMS academics emphasize that this 'co-operation, collaboration and co-ordination' between UGMS and the Regional Ministry of Health in the delivery of health care services to the community has been made possible because of the strongly community-oriented medical curriculum of UGMS.

Visit To el Managil

A separate section is dedicated to documenting the visit to el Managil as it epitomises the lengths to which the UGMS vision of social commitment and community consciousness is carried out by the faculty. El Managil is an area 80 kilometres from Wad Medani that had been devastated by floods two months before our visit. It is a field training area for UGMS medical students and consists of three villages with a total population of about 10,000. The floods had subsided but most of the mud brick houses had been completely destroyed. The temporary refugee camps set up by the Sudanese Red Crescent were in need of urgent humanitarian support and were threatened with disease and starvation of epidemic proportions.

UGMS stepped in to give leadership to the massive relief effort and also to galvanise the regional government. UGMS academics initiated and organised the relief effort, mobilising physical and human resources from all possible public and private sector agencies. A convoy of 20 trucks with medical and health support staff, food (grain and live protein) and building materials was financed and mobilised through the commitment of the UGMS faculty under the leadership of the vice-dean. The enthusiasm of the UGMS faculty and students in participating in this urgent and critical community rescue endeavour was a revelation. It was an unequivocal expression of community consciousness and commitment and a unique example of the UGMS mission in action. The faculty and students who participated in the distribution of the food and building materials stayed on in the camps for two more days. Under these extremely grim and austere conditions, they conducted health camps and attended to the medical needs of the affected people. The tumultuous welcome received by the rescue convoy when they reached the refugee camps, the merging and intermingling of the rescuer and the refugee, the faculty and the people and the enthusiasm shown by the faculty and students during this effort was an authentic social measure of the success of the community-oriented, community-based medical education at UGMS.

Conclusion

Sudan is a very large country with a relatively small population. The State of Gezira has vast tracts of arable land and water as a main natural resource from one of the largest rivers and irrigation projects (the Gezira scheme) in the world. It is, nevertheless, an underdeveloped poor country. Therefore, it is to be expected that UGMS will have severe constraints in financial resources and infrastructure. These constraints are observable in the medical school library (a large new library building is under construction and nearing completion), laboratories and other facilities. The UGMS faculty does not seem to be the least bit intimidated by these deficiencies. They have maximally utilised the facilities available to them and in that process they have inculcated in the students a 'culture of determination' that has had beneficial and positive effects on their attitudes. Student concern for poor

patients and commitment to their community and field training activities were clearly observable. Sudan, as other countries in the region, has many serious and challenging health problems. The Gezira region is seriously affected by chloroquin-resistant falciparum malaria. Every health centre has a special room for intravenous administration of quinine. The poor literacy rates are a major impediment to the implementation of effective health education and promotion of healthy lifestyles. Superstitions and tribal beliefs are still prevalent and affect health education and medical treatment outcomes. The challenges that have to be met by the health services are clearly daunting. UGMS faculty have realistically assessed them and are equal to the task. The distinctively community-based and community-oriented curriculum at UGMS and the co-operative, collaborative and consultative partnerships that the UGMS faculty have developed with the regional health authorities are together what makes the UGMS experience unique. In addition, one finds a sense of communion and brotherhood that seems to contribute to the community consciousness of UGMS students and staff, a finding that may be attributable in part to their Islamic cultural heritage and traditions. UGMS can be considered as a beacon for its approach to medical education not only for underdeveloped Africa, but also for other third-world nations and more affluent developed countries as well.

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Egypt is situated in the north-east corner of the African continent and is divided into 27 governorates (provinces), each with a governor. The Suez Canal area, over which the different faculties of the Suez Canal University are spread, is divided into the five rather small governorates of Suez, Ismailia and Port Said along the Suez Canal, and North and South Sinai. The population of this area is two million - less than 20% of the Egyptian population.

Suez is situated on the southern end of the canal, 88 km south of Ismailia, which is approximately midway between Suez in the south and Port Said in the north, at the mouth of the Mediterranean Sea. Suez was heavily damaged by the Israeli bombardments, and evacuated by almost the entire population between 1967 and 1973 (Richardson & O'Brien, 1993). It has, however, risen from the rubble to become an industrial city producing petroleum, fertilisers and cement. Ismailia lost half of its population during the time the canal was closed. The six-day Arab-Israeli war in 1967 closed the canal for eight years; it was reopened in 1975 (Richardson & O'Brien, 1993). The Suez Canal Authority headquarters are located in Ismailia. Port Said was also heavily damaged during the Israeli attack and became the focus of large-scale reconstruction until the re-opening of the canal. It became a duty free port in 1975, and commerce, fishing and tourism are the most important economic activities. The Sinai is a barren desert peninsula, and has traditionally been the gateway between Africa and Asia. It was occupied by the Israelis in 1967 and returned to Egypt in 1982, after decades of hostilities. Its traditional inhabitants are Bedouins (nomads). Many of them have now abandoned the nomadic way of life, and make their living from a combination of date farming and raising livestock.

In general, the socio-economic conditions in the Suez Canal area are better than those in the average Egyptian governorate, so people migrate from other governorates to settle here. The population growth rate of the Suez Canal area is therefore higher than the national average. The main health problems are hypertension, diabetes and obesity. Bilharzia is prevalent mainly in the rural areas.

Background

In contrast to the Egyptian tradition of applying the practices of existing medical schools when establishing a new one, the Faculty of Medicine, Suez Canal University (FOMSCU), was established in 1977 as a pioneering attempt to address the problems of medical

education in the country, and as a response to the health service and geopolitical situation at the time. Nooman et al. (1990) have pointed out the importance of considering the educational, health service and geopolitical context in which the school has been established in order to understand its comunity-based educational program.

Medical Education

There was an increasing dissatisfaction with the large numbers of graduates of the nine other Egyptian medical schools. It was perceived that overcrowding and lack of facilities had impacted negatively on their training, which was heavily biased towards a conventional western model. The largely didactic, discipline-based, and tertiary care oriented curriculum was inappropriate, and a population-based comprehensive approach to health care was almost non-existent (Nooman et al., 1990). FOMSCU was planned to address these problems, and not simply to be another addition to already existing traditional medical schools. Therefore it took four years of preparation and planning before students were admitted in 1981.

Health Services

While Egypt had one of the widest networks of urban and rural health units in developing countries, supported by secondary and tertiary hospitals, the quality of the services, according to Nooman et al. (1990), was far from adequate and needed considerable strengthening. They stated complex policy, financing, management and personnel problems as reasons for this, and pointed out that while there was not a shortage of medical doctors, other health professionals were both quantitatively and qualitatively lacking.

Geopolitical Considerations

The Suez Canal University was established as part of the extensive redevelopment plans for the battered Suez Canal area, to which Sinai was later added after decades of conflict. The different faculties of the university are spread over this vast area. FOMSCU was developed to address the problems in medical education, as well as to collaborate with the health authorities, in particular the Ministry of Health, so as to improve health care delivery in the rapidly growing Suez Canal area and Sinai. According to Nooman et al. (1990), this became one of the key institutional goals of the school, and an innovative curriculum was developed. It is characterised by the integration of biomedical, clinical, behavioural and community health sciences, and utilises a problem-based, student-centred learning approach, with the majority of educational activities located in community-based settings.

Nursing Education

The nursing school, the High Institute of Nursing, is affiliated with the Faculty of Medicine. Situated in Port Said, it was founded in 1988 and remains the only community-oriented nursing school in Egypt, and the only school training nurse specialists (graduates of a four-year degree program) in the Suez Canal area. The curriculum, which is also problem-based and community-based, took two years to develop. Another year was spent getting the curriculum approved and recruiting students; therefore, the first class was admitted in 1991.

Educational Strategies

In addition to data obtained through individual interviews with faculty and a focus group interview with students, this section draws heavily on an internal document, *Faculty of Medicine:Suez Canal University*, produced by FOMSCU's Centre for Research Development in Medical Education and Health Services. The curricula of the medical and nursing schools are both problem-based and community-based, and a brief description how each of these strategies is implemented is given below.

Problem-based learning
Students learn through written problems designed to cover the theoretical and knowledge aspects of the curricula. These problems are based upon the priority health problems of the community. Every week, each small group of students is given a curriculum-based health problem to solve in two class sessions. The first session is for brainstorming and students, with the facilitation of a tutor, formulate educational objectives for solving the problem. Students then search for information in the library, the multipurpose laboratory, at seminars, or by consulting with subject experts. Each group meets again at the end of the week in a briefing session. They exchange the information gathered and try to reach a solution to the problem. This learning style helps students to acquire important competencies such as the ability to work in a team, self-assessment, peer-assessment and critical appraisal.

Community-based education
Community-based educational activities are one of the pillars of the curricula of both the medical and nursing schools, and are integrated with problem-based and hospital-based activities. Magzoub (1994) has described the community-based education (CBE) program of FOMSCU as being primarily service-oriented. He proposes a taxonomy that distinguishes between programs that are primarily service-oriented, programs that are research-oriented, and programs that are training-focused. He further subdivides the service-oriented programs into *"health intervention programs"*, where the main focus is on the delivery of curative and preventive services, and *"community development programs"*.

The partnership between FOMSCU and the El tel Alkabeer is an example of a community development program. (This partnership is described in detail in the section on community involvement.) According to Magzoub (1994), the role of the student in such a program extends beyond that of 'data collector' or 'health provider,' to that of 'community development worker' or 'change agent.' He pointed out, however, that the classification is based primarily on the main focus of the program.

One finds programs that include all the activities mentioned in the various categories at the FOMSCU. Through these community-based learning experiences, students acquire the skills required to manage the priority and common health problems of individuals and communities. They have the opportunity to learn the biomedical, clinical, behavioural, psychosocial and epidemiological sciences in an integrated way and are exposed to health problems in a proportion and frequency that approximates their occurrence in the community (Nooman et al., 1990).

Medical and Nursing Curricula

The medical curriculum

The six-year medical curriculum is divided into three phases, each with defined educational objectives based upon the competencies necessary for graduation. These competencies were determined by the health needs of people in the Suez Canal area, a task analysis of what is expected of an Egyptian physician (the Optimum Egyptian Physician Performance), and the institutional goals of the school. The graduate competencies at FOMSCU are: the promotion of health and the prevention of disease; the provision of clinical care; problem solving; self and continuing learning; self and peer assessment; critical appraisal; research and managerial skills; and the ability to work in a team.

Horizontal and vertical integration between the medical sciences is attempted throughout the curriculum. The basic, clinical, social and behavioural sciences are integrated in the curriculum from the first through the sixth year, while traditional schools teach the basic sciences in the first three years and the clinical sciences in the last three years. The social and ethical aspects of medical practice and the commitment to the health needs of the community permeate the whole educational process. A brief outline of each of the three phases is given below.

Phase I (Year One) The focus in the first year is on a general introduction to medicine, and deals primarily with pre-pathogenesis. Students start by reviewing the biology of the cell, and through a series of blocks organised along the sequential stages of life, from conception to old age, they learn about the structural, functional and psychosocial characteristics of humans. Students are also introduced to factors in the environment and society that cause ill health. Students spend two days every week throughout the year in

primary health care (PHC) settings to apply their knowledge and learn basic clinical and research skills.

Phase II (Years Two and Three) This phase deals with pathogenesis. It consists of twelve thematic blocks during which students learn how the interaction of medical, social and environmental factors lead to the genesis of disease. The greater part of the biological sciences is integrated with social and behavioural sciences around individual and community health problems. Problem design, selection and sequencing are based upon the consideration of priority and common health problems, as well as the educational objectives of the phase. Students spend two days every week in the PHC units to further develop their clinical, research and community-related skills.

Phase III (Years Four-Six) This is the phase of clinical rotation clerkships. In this phase problems are often derived from case studies that students provide from their fieldwork placements. Student activities for each year are distributed as follows:

Year Four: Students are trained through four educational blocks (36 weeks total) that include the out-patient clinics at the university's hospital, PHC settings and occupational health clinics. At the end of the year, students spend six weeks conducting a study on a topic of interest to themselves, the faculty or the community. While this project does not have to be community-based, many students make that choice.

Year Five: Student clerkships include the Fever Hospital and Infectious Diseases Centre (in Suez Governorate), and in the ear, nose and throat, dermatology, ophthalmology, psychiatry and orthopaedics departments of the University Hospital and the hospitals of the Ministry of Health in Ismailia; they also rotate through forensic medicine and toxicology. They spend one day per week throughout the 36-week program in PHC settings, where they assume clinical duties and participate in community work.

Year Six: Students spend 36 weeks training in Suez Canal teaching hospitals, and are placed in the departments of medicine, surgery, gynaecology, obstetrics and paediatrics.

The nursing curriculum

The four-year nursing curriculum is divided into two phases, with an internship year in the middle of the two phases. The rationale for this organisation is that it provides an exit point for those who wish to conclude their schooling after completion of the internship year and become nurse technicians. However, all students have thus far chosen to continue after the internship year and graduate as nurse specialists. Placing the internship year between the two phases also gives students an opportunity to gain more practical experience. Nursing faculty who were interviewed believed that this allows students to be better prepared for the third and fourth years of study.

Phase I (Years One and Two) The overall objectives of this phase are for the students to learn to: utilise national resources, facilities and referral systems when providing nursing care; utilise the nursing process to provide care to healthy and sick individuals, families and communities in different settings; provide health education to individuals, families and communities; and demonstrate the ability for self-assessment and for continuous professional development.

Phase Two (Years Three and Four) The overall objectives of this phase are for the students to: apply the principles of administration and management in different health care delivery settings; apply principles of learning, curriculum development and educational technology in educational institutions; conduct research projects in different settings and with other members of the health team; and provide expert clinical nursing care to individuals.

Community-based Learning Activities

Community-based learning experiences include training medical and nursing students in PHC and occupational settings, work on community surveys and projects, and participation in the family health care programs. These community-based activities are distributed throughout the entire curriculum and constitute a significant amount of time, in both the medical and nursing curricula. It can be said that at least one-third of time spent in training is spent in community-based settings and activities.

The training sites, both rural and urban, are spread throughout the Suez Canal area (Suez, Ismailia, Port Said and Sinai), and introduce students to the lifestyle of different sectors of the population, including farmers, fisherman, nomads and labourers. The principles underpinning the community-based activities in the medical and nursing curricula are the same; for purposes of illustration, the nature and distribution of community-based activities in the medical curriculum are described below.

Training in PHC settings

Students are placed in PHC settings of the Ministry of Health (MOH) and at family health care centres affiliated with FOMSCU. The purpose of these placements is to expose students to the whole range of functions including preventive care, health promotion, and the curative and managerial aspects of health care. It also facilitates an understanding of the concept and philosophy of PHC.

In year one, students train for two days each week in PHC settings, concentrating on activities related to the themes of the different blocks. In years two and three, students rotate through the different activities of the PHC units and their catchment areas for two days each week. Activities focus on maternal, child and school health care. Students

conduct health education programs relevant to these activities and examine patients under supervision. In year four, they spend one semester in PHC units, three days each week, while in year five they spend one day per week throughout the whole year.

Using the PHC units as a base, fifth year students also work with non-government organisations (NGOs) and community-based organisations (CBOs) to develop community partnership programs. These programs focus on community development and empowerment, often through the training of community health workers and community volunteers. Students therefore learn to work in partnership with communities and to develop health promotion programs based on self-identified community health needs. A recent addition to the fifth year has been an introduction to health economics. In 1998, student assignments included the cost analyses of diabetes and hypertension (which are important health problems in Egypt), and comparing the cost-effectiveness of any two interventions.

In Year Six, students again spend one day each week at PHC units, evaluating the quality of the service. While this placement uses the same type of facility, the emphasis shifts from community development to the development of managerial skills.

Occupational health settings
During the fourth year, students are placed in industrial health care settings for six weeks. This can include cement and textile factories, shipyards and health insurance clinics. They learn how to identify and manage occupational health problems, and gain an understanding of the roles and functions of the different health team members working in these settings.

Community projects and surveys
Projects are integrated with the objectives of each phase and form an important component of CBE. In Phase I, students are introduced to the basics of research methodology and surveying techniques. In Phase II, the project aims at community diagnosis and identification of the major health problems of the community. During Phase III, students perform analytical studies and implement intervention studies to solve identified health problems. It was very clear from student interviews that these projects are generally for the purpose of helping the community to solve their problems. They would not "use the community" as an educational laboratory or merely as a place to collect data.

Family health care program
This recently terminated program involved assigning a student to a particular family. Through regular home visits, the student was able to learn about the lifestyle, health beliefs and health problems of a particular family. They also observed their coping abilities and responses. Moreover, it provided students with the opportunity to build a relationship with individuals and families over time, and to develop the skills of observation and listening and the value of caring. This program was controversial within FOMSCU: Some faculty

were not convinced students learned from the experience while others viewed it as a meaningful community-based experience for students. Even if the family had no health problems, it allowed the opportunity for students to talk with them about health and share prevention messages.

Elective study
While all of the above-mentioned community-based activities are compulsory, the curricula do include an elective six-week research project at the end of the fourth year. Most students choose to spend this time working on a community-based project related to a priority health problem, such as bilharzia (schistosomiasis).

Hospital-based Activities of FOMSCU

Hospital-based placements start with the Phase III clinical rotation clerkship. Hospital-based experiences expose students to secondary and tertiary levels of care. Refaat et al. (1989) have pointed out that the hospital-based experience in a community-based curriculum should be related to primary care, so that students learn to distinguish between and relate to the different levels of health care. At FOMSCU, community-based activities are integrated into Phase III in a balanced and creative way, blending hospital-based rotations with community projects and surveys, and PHC and occupational health placements.

Student Assessment

Assessment of medical and nursing students is both formative and summative, and covers the three domains of knowledge, skills and attitude. Students are assessed using different techniques and tools, such as observational checklists, written reports, group presentations and written exams.

Continuous assessment occurs throughout the academic year in all educational settings (in the classroom, laboratory, community and hospital settings). After each tutorial session, students engage in self-assessment, peer assessment and tutor-student assessment (as well as student-tutor assessment, where students evaluate tutors). In the skills laboratory, the tutor uses a checklist to assess student performance. In the MOH and university-affliated PHC centres, students are assessed by tutors, again using a checklist, or through assessment of records regarding tasks they were expected to perform.

The purpose of continuous assessment is to encourage self-assessment and self- improvement by students, so it has no consequences in terms of student grades. Skill acquisition is approached from a mastery viewpoint; students practise skills until they are mastered.

Most community projects and/or studies performed by medical students are small group activities, except for the individual project in the sixth year. Nursing students do a group research project in the fourth (final) year. Student research projects are supervised by tutors who assess the group continuously. These community-based group projects are not graded, but evaluative comments are made throughout the research process. On completion of research projects, students prepare a presentation to community members, faculty and other students.

Community members participate in the on-going assessment of medical and nursing students by giving feedback to students and tutors. They comment mainly on aspects such as student attitudes and their feelings about the community projects implemented by the students. Through community feedback, information is obtained about the impact of the program and what changes may be needed.

It is interesting to note that while community-based activities are not marginalized in the medical curriculum and are highly valued by students, the group of students who were interviewed gave the impression that practice-related to activities in internal medicine and surgery are more important. This appears to be related the nature of the assessment during the first two phases of the curriculum. All practice-based activities during the latter two phases are community-based not hospital-based, which becomes the main site of learning during the third phase of clinical clerkship. Talking about the assessment of the first two phases, a student commented:

> ". . . we just know we pass, it's okay: we were excellent in this, we were very good in something . . . but in the fourth, fifth and sixth years – at the end of the phase, we get our grades in internal medicine, surgery, and so on."

One reason for allocation of individual grades in the final phase may be that students have to compete with other students for jobs, and therefore require a tangible record of their performance. Another could be related to the fact that most of the community-based activities in the first two phases are carried out by groups. While assessing the performance of the group, it may be difficult to quantify the contribution of each group member. Moreover, it is even difficult to grade the group in terms of pass or fail, as the community-based project of each group is supervised by a tutor. This further complicates assessment of students, even as a group, as pointed out by one faculty member:

> "how do you guide a group through a project, give them continuous feedback, and then tell them **we** [interviewees emphasis] have failed?"

This is just one of the difficulties experienced by tutors in assessing students in community settings. At FOMSCU, these assessment difficulties appear to be having the effect of

engendering among students the perception that internal medicine and surgery are the most important components of the curriculum.

Summative assessment for medical students occurs at the end of each block, each academic year, and each phase. (For nursing students, it follows a similar pattern). Student performance is measured in community-based projects and laboratory activities in different disciplines (such as anatomy, histology, biochemistry, microbiology, pathology and pharmacology); clinical skills in the skills lab are also assessed. Students have to be competent in their clinical skills in order to sit for the written examination and be evaluated in their knowledge. If a student fails the clinical skills examination, the written examination can be taken only at the end of the next block.

The main assessment methods used at FOMSCU are: the problem-solving examination (the triple jump),[1] the modified essay question (MEQ), and the objective structured clinical examination (OSCE). These methods allow all knowledge levels to be tested, starting from the recall of knowledge through the comprehension, analysis, synthesis, application and critical appraisal levels.

Mission and Leadership

Community-oriented education is central to the philosophy of FOMSCU. This is as much a result of the context in which the school developed as it is of the strong and committed leaders who helped to establish the school, shape its vision, and develop its programs. The founding members of the school were individuals acutely aware of the failure of the medical model, and who were committed to the primary health care approach with its emphasis on community participation. They recognised there was a wide gap between the content of educational curricula and the realities of health problems and health care requirements in communities.

The leaders who started the school shared concerns that teaching techniques had not kept pace with the requirements of the rapid evolution of knowledge, and the inability to cope

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[1] This exam, common to the problem-based learning methodology, evaluates how the student is able to comprehend, analyse and synthesise information. It includes a self-assessment component and does not test simple recall of knowledge. The student is evaluated in three steps, thus the name, "the triple jump:"

a) the student is given a written problem and allowed ten minutes to read it. The student has to identify, analyse and synthesise the problem and extract learning objectives.

b) the student is then allowed to go to the library and consult with subject experts to research the identified learning objectives.

c) the student goes back to the evaluator with his/her findings and is expected to solve the problem and complete a self-assessment of their performance.

with the 'information explosion' phenomenon.[2] It could be said that FOMSCU's basic philosophy was primarily influenced by the vision of dedicated leaders, who were informed by and prepared to act upon the recommendations of conferences and studies of Egyptian medical education as it was practised at the time.

Another factor shaping the philosophy of FOMSCU is the fact it was developed when the concept of co-ordination and integration between health services and human resources development was beginning to crystallise. This concept, adopted by the World Health Organisation (WHO) at its 29th meeting, was also the central theme of the meeting of ministers of education and health in Teheran in 1978. They emphasized the importance of co-ordination between educational institutions and health service organisations, with a view towards ensuring that the most important policy goal of educational institutions would be to meet the needs of the health services. Thus the Ministry of Health (MOH) played a significant role in the planning and implementation of the curriculum of FOMSCU. At the time, FOMSCU leadership was also committed to this and they developed strong personal links with key people in the MOH.

Other factors that helped shape the philosophy of the school were the global progress in educational approaches - particularly in medical education - and the mandate to produce graduates whose vision and role would extend beyond diseased organs and individuals to the family, community and the environment as a whole.

Organisation of Departments and Reward Systems

FOMSCU includes all the departments traditionally found in a medical school. However, an important feature of the organisation of CBE at FOMSCU is that it is faculty-based and not department-based, as is the norm with many medical schools that have more limited community-based activities. Although it can be said that the departments of community medicine and family medicine are the most closely linked to the undergraduate program, the planning, implementation and evaluation of CBE is a shared responsibility. Practically all FOMSCU departments are involved in CBE and various structures, processes and mechanisms have been set in place to facilitate collaboration. It is clear that students at FOMSCU have positive perceptions of the importance and relevance of the competencies they acquire through CBE activities. As asserted by Nooman et al. (1990), students would receive a totally different message if their community-based activities were confined to the community medicine or family medicine curricular components.

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[2] This topic was discussed at length in the internal document, *The Faculty of Medicine, Suez Canal University*, prepared by the staff of the Center for Research and Development in Medical Education and Health Services, in collaboration with the World Health Organization's Eastern Mediterranean Regional Office.

As with many other nursing programs, the FOMSCU nursing school is not organised around departments and all staff members are involved in CBE. CBE forms the basis of the nursing curriculum and requires the involvement of all departmental faculty. Because the latter is central to the school's philosophy and functioning, there are no specific incentives for community-based work. Some faculty do, however, seem to enjoy and express a greater interest in community-based work. Consequently, they invest more time and energy in it than others, but receive no special rewards for their efforts.

Within the medical school, all faculty are required to be involved in a certain number of educational activities, in addition to their roles as specialists (being a subject area expert is considered part of the specialist function). At minimum, each faculty member acts as a tutor in tutorial group sessions at the institution (not in the PHC clinic or hospital). The deputy vice-dean of education calculates the amount of time worked by each faculty as a tutor and this is translated into credits. Each faculty needs to obtain a minimum number of credits per year. Involvement in educational planning enables faculty to accumulate more credits. In addition to other requirements, sufficient credits in education (tutoring) are a prerequisite for promotion. It could also be said to be an incentive for quality in education, as evidenced by the remark of one interviewee:

"If you have a low score, it is not good for your ego."

While work in 'education' is rewarded, there is no special incentive for community-based work. As in the nursing school, all faculty are expected to be involved in community-based work and generally they are. In the early years of the school's development (ten years ago), workshops and conferences abroad were used as incentives for faculty to be involved in CBE activities. With the current financial constraints, this is no longer possible. However, class and field supervision appears well balanced, as pointed out by one interviewee:

"It rarely, if ever, happens that a lecturer does not want to be a tutor in the field."

Admissions

The Ministry of Education in Cairo centrally controls the admissions process for both the medical and nursing schools; therefore, there are no specific admission criteria. All students write the National High School Examination of Egypt, and are allocated to various academic programs according to their grades. Students with the highest scores will be allocated to a medical school and those with the second highest to engineering, with nursing students having somewhat lower grades. While student preferences are considered for placement at a particular university, students are generally placed at a university near their home.

One implication of the above policy, together with the policy of free education in Egypt, is that it reduces the need to recruit students. The nursing program, which is relatively new, is advertised through the mass media, and is already well known in Egypt (ten percent of students come from Port Said and the remaining 90% from all over Egypt).

Evaluation Systems

The FOMSCU curriculum, program, students and faculty are all subjected to internal evaluation; both the medical and nursing schools indicated that external program evaluations have been done. Responses to questions on program evaluation did not help to provide a sense of whether this was done in any systematic way. It is noteworthy that none of the faculty who were interviewed were able to retrieve copies of program evaluation reports. This could indicate a need for strengthening the evaluation systems.

Evaluation of the curriculum has been described in the section on student assessment. It is mainly conducted through the continuous feedback from tutorial sessions, fieldwork and field projects, hospital training, seminars and laboratory work. Evaluation is also done periodically through checklists that are completed by the students, tutors, co-ordinators and subject area experts.

Evaluation of the performance of medical faculty is measured by their departmental and interdepartmental 'education' activities, and both are taken into consideration for promotion purposes. As previously mentioned, FOMSCU has a system for measuring faculty involvement in 'education' activities monitored by the deputy vice-dean of education.

The first cohort of medical students graduated in 1987, and to date a total of twelve cohorts have graduated from FOMSCU. There are indications that these graduates are performing well - some have won awards for their clinical and academic skills. The performance of medical graduates is also evaluated through questionnaires distributed to samples of their colleagues, health service consumers and the Egyptian Physicians Syndicate.
While data on the performance of nursing graduates have not been collected in a systematic way, letters received by the school from employers indicate that employers are very positive.

Research

The research agenda of FOMSCU and the High Institute of Nursing is driven by the priority health problems of the Egyptian population, and therefore has a local focus. It is clear that medical and nursing faculty and students are committed to community-based research that addresses the identified needs of the communities in the Suez Canal area.

Student research projects are based on the prevalence of health problems in the community. Topics are generally identified in partnership with communities since the goal is to help improve their health and well being and not merely to provide an educational experience for the students. Students meet with community leaders and groups and prepare a community diagnosis. Topics for research can also be identified by reviewing individual medical records.

At FOMSCU, students spend a significant amount of time in community settings during all educational phases. Students felt that this enabled them to truly understand people's problems and to build meaningful and trusting relationships them. One sixth year student commented:

> "Over time you build a relationship with the people. We get to know them and their problems . . .We have a long year so that we can be sure we are serious about this."

Student research projects are commonly done during their placements at PHC sites which is usually for a substantial period of time. The group of sixth year students conducted an epidemiological study over a period of two years (their second and third years), while attached to the PHC clinics for two days a week. The purpose of the research was to study the risk factors for hepatitis.

An advantage of extended attachments in PHC settings is that students are able to complete the individual or group projects, give feedback to communities, and use the data to provide intervention or service. Often this may take the form of a health education or health promotion program, training of community volunteers or health workers, or referral of identified cases for treatment. In 1995, a small group of third year students (who were also part of the hepatitis study that involved the whole class) did a cross-sectional study to estimate the prevalence of hypertension in the selected district, and to assess the knowledge of people regarding this problem. The study revealed that one in every ten persons was affected and that the knowledge of people about hypertension (risk factors, signs and symptoms, and complications) was inadequate. The detected cases were referred to the university hospital for free medical treatment and a health education program was implemented. When appropriate - for example, a study on the quality of service at a PHC clinic - feedback or recommendations will be given to the service providers or relevant authorities.

Another example of a research activity by students which resulted in recommendations to the regional health authorities, and which helped to identify and solve a major health problem, has been described by Schmidt et al. (1991).

> "Schistosomiasis is a major endemic disease in Egypt. Half of the population is exposed to this infection through daily contact with the canals of the Nile River,

which are infested with an intermediate host, a snail. Several years ago, as part of national development plans for the Bedouin-inhabited Sinai Desert, water for irrigation was channelled from the Nile Valley to canals constructed in Sinai to feed new agricultural projects. What is the public health impact of bringing the Sinai Bedouins in contact with the snail-infested Nile water to which they have never been exposed before? Have prophylactic measures been taken and, if so, how efficiently? Such were the questions that a group of six fourth-year students of the Faculty of Medicine at Suez Canal University, bordering Sinai, decided to answer during their six weeks elective by designing and implementing a field study. They defined the demographic features of the community, examined the canals for infected snails, interviewed the population at risk, and examined the residents' excreta for parasite eggs. They found that in spite of prophylactic measures, the canals harboured infected snails and that the Bedouins were infected. The students reported their findings to the regional health authorities, with whom they discussed the recommended prophylactic measures."

Service

The role of medical school faculty in service provision is clear. Clinicians are required to work in the university hospital and are responsible for supervision of students in this setting. Faculty of the Department of Family Medicine provide clinical services in the PHC clinics attached to FOMSCU and also supervise students in these settings. The faculty from the Department of Community Medicine does not provide clinical services but become involved in research and other projects in communities. Interviews with a few key faculty members reveal a long-term commitment with regards to the provision of services and involvement in community issues, as illustrated in the next section.

The role of faculty in the nursing school regarding service provision was less clear. They were however indirectly involved in helping to solve problems of the local community through the supervision of student projects.

Community Involvement in the Institution

FOMSCU was created as a community-oriented institution and has developed long-standing relationships with a number of communities, most notably the El tel Alkabeer community. The process of involvement between FOMSCU and this community could be said to best illustrate the role of FOMSCU as a community-oriented and community-based school. Similar processes and approaches are used by the school in its partnerships with other communities.

FOMSCU became involved with the El tel Alkabeer community on the *request* of the people. They wrote a long letter to the school in 1987 in which they stated all their problems. One key faculty member recalled the willingness displayed by the people to shoulder most of the responsibility for solving their problems: "We are ready to shoulder most of the burden, but please help us."

The first activity was to get to know the people. This was done by holding a series of meetings with community leaders and groups, as well as doing a study on the socio-cultural behaviour of the community. This was followed by a review of individual medical records. A health survey was then done with the community. Prevalent health problems such as schistosomiasis were identified by the survey and included in the curriculum.

As new problems emerged, the university and community worked together to solve them. For example, in 1995 there was a severe epidemic of Rift Valley Fever. Students, together with the community, conducted an intensive educational program in order to eradicate the epidemic. There were only four deaths in the whole El tel Alkabeer region. The next problem they addressed was that of mosquitoes, by educating people how to improve the methods of sewage disposal and emphasizing the importance of covering drains.

A health education program was started and 55 community health workers were trained to implement it. Early on in the partnership students were very involved in health education and promotion, as well as in the training of the community health workers. Health education sessions were conducted by the students and community health workers in the evenings, a time that was convenient for the community. This gives some indication of the commitment and flexibility of faculty and students of FOMSCU to respond to community needs. According to the group of community health workers who were interviewed for this study, students played a bigger role in the beginning of partnership and program development. As the capacity of the community health workers grew, the involvement of the students grew smaller. The community health workers have now completely taken over management of the program. In another interesting student project, medical students worked with agricultural students to reduce the exposure of villagers to highly toxic chemical fertilisers. Villagers now use natural fertilisers produced by a factory from waste collected by the villagers.

A very significant achievement of the partnership between the Suez Canal University and the El tel Alkabeer community, according to a focus group interview with community health workers, was the education of women and children. They reported that the literacy level in one of the villages was approximately 15% in 1997. At the time of interviewing (1998), 90% of all villagers and 88% of women were reading and writing. The literacy program continues, with the training now being done by community health workers.

Another outstanding achievement was the successful implementation of a program to reduce infant mortality. A training program for traditional birth attendants was implemented. After training, these lay women were able to recognise and acknowledge how incorrect many of their ideas had been. They also came to appreciate how unsafe many traditional procedures were. An important outcome of the training program is that the traditional birth attendants now have a very clear understanding of their roles and responsibilities, and know which cases need to be referred. It was reported that the infant mortality rate dropped from 118 per 100,000 to approximately 15 per 100,000 within two years.

The above examples are illustrative of how a university, through its research, service and community programs, can contribute to the improvement of the quality of life of a community. At FOMSCU this is possible because the real problems of communities are taken seriously, and are transferred and integrated into the educational programs. One faculty leader who was involved in this partnership since its inception, pointed out that it takes much time and a great deal of openness and commitment to really understand and respond meaningfully to the many problems of poor communities. She related the story of a very poor older person whom she met one day, crying and carrying a long stick. He complained to her that the programs they were implementing were not appropriate:

> ". . . you are teaching us how to read and write but are neglecting that our crops are being burnt."
>
> The level of the underwater was high and it was burning their rice. She indicated that from that time on, they started:
>
> ". . . going out to the very far reaching areas and developed a medical centre in a most remote village in the area, and we started to include in our educational programs some agricultural and animal husbandry programs."

The organisational linkage with the community is through the El tel Alkabeer Society, which was formed and registered in 1991. Prior to this, students and faculty worked with small community groups on an informal basis. Members of the society are the El tel Alkabeer residents, who pay a small annual membership fee (three Egyptian pounds). The society is governed by an elected board that is chaired by a faculty member who has been one of the key persons in developing the partnership with the community. As 75% of the board lives in the community, the board is controlled by community members. Several faculty members serve on the board, as do a few persons from the local administration and peoples' councils.

No formal structures exist at the university on which the El tel Alkabeer or other community members serve. However, community representatives participate in curriculum development and program evaluation. They contribute to the formulation of problem development or topics for student projects through the identification of their health needs.

Their input into program evaluation is through the on-going assessment of students. They provide feedback to students and tutors concerning their perceptions of student attitudes towards community members. They assess the value to the community of student projects and other activities. Community representatives have no role in student admissions, since this is controlled by the Ministry of Education in Cairo.

Faculty Development and Other Educational Programs

The preparation period for the undergraduate medical program was four years. This time was used to prepare the faculty, an activity that is continues today. Faculty are encouraged to attend workshops and conferences both locally and abroad. Often, consultants from other innovative schools are brought to FOMSCU. In addition to their specialities (like community medicine or family medicine) faculty also pursue degrees in education. Thirteen faculty members in the school have completed the Master of Health Professions Education degree (MHPE), offered on-site at FOMSCU by the Department of Medical Education, College of Medicine, University of Illinois at Chicago. This program was implemented in 1984 and has considerably strengthened the capacity of participating faculty to develop the medical curriculum and utilise innovative teaching-learning strategies. It also has developed their leadership abilities and can be said to have played a big role in ensuring the success of the school. It is noteworthy that three faculty members of FOMSCU have completed doctoral degrees in education, something almost unheard of in traditional medical schools.

Because of the policy of free education, most students in Egypt go on to postgraduate degrees upon completion of their undergraduate studies. Continuing education programs for medical practitioners in the field are mainly conducted by the postgraduate education program of the school, and on a smaller scale through workshops and conferences. The postgraduate programs that appear to be most linked to the undergraduate programs are the advanced degrees in family medicine and community medicine, although all other departments are involved in one way or another.

The High Institute of Nursing was started by two faculty members from the medical school who were already well acquainted with problem-based learning and CBE. This occurred due to the severe shortage of nursing faculty all over Egypt. Nursing faculty were brought in on a consultant basis from three other nursing schools in the region, to teach in both the undergraduate and postgraduate programs. A series of workshops was held to orient faculty to CBE and problem-based learning. Through its postgraduate education program the school now has its own faculty, of which fifteen are instructors (who give lectures and act as tutors in both the classroom and the field), and twelve are assistants. Of these 62 faculty members, 20 are graduates of the FOMSCU undergraduate program. They are therefore familiar with FOMSCU's teaching-learning strategies, but workshops are held

on an on-going basis to orient and/or develop faculty members. Five postgraduate students are about to complete their doctoral degrees and the others are in different stages of their masters and doctoral degrees. It is interesting that the focus of the research of most of the latter students is community-based.

The High Institute for Nursing conducts a number of continuing education courses for nurses in the Ministry of Health. It has established a unit that is responsible for the implementation of on-going workshops and programs on intensive care and first aid.

Ministry of Health

The context in which the school was established as well as the mission which the school set for itself, required that strong links be forged with the MOH. Moreover, all the health care facilities utilised by the school are run by the MOH, so FOMSCU had to develop relationships with the MOH at both the central and regional levels. In the early years of the school's development, these relationships were formally structured, but this has changed in recent years. One reason for this appears to be the changes in leadership at FOMSCU.

Previously there was a central body, the Permanent Committee for Health Services and Medical Education in the Suez Canal area and Sinai, which co-ordinated the whole area of collaboration. According to Nooman et al.(1990) the regional directors of health served on the health-services committee of FOMSCU. This facilitated the educational activities of students in the health services, and strengthened the involvement of health personnel in student training. It also facilitated involvement of faculty members in the health services through service, research and training.

While linkages appear to be no longer formally structured, relationships between FOMSCU, the High Institute of Nursing, and the MOH continue. There is close collaboration with the MOH around a number of initiatives. For example, students of both the medical and nursing schools are still placed in the PHC and hospital facilities of the MOH for their field training. Both the medical and nursing schools provide continuing education programs for health service staff of the MOH. They collaborate closely with the MOH to ensure the success of these programs, as well as to conduct research that will help to solve some health service problems.

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Division of the Health Sciences, East Tennessee State University

Ronald W. Richards

East Tennessee State University, a small (by U.S. standards) state supported institution of higher education, has approximately 12,000 students, 2,000 of whom study at the graduate level. Founded in 1911, this institution had a long commitment to health professions education - the College of Nursing began in 1949. In 1978, the United States Congress passed the Teague/Cranston Act that created medical schools by affiliating them with various Veterans' Administration Hospitals around the country; ETSU's medical school is one of those schools. The State of Tennessee has two boards governing higher education, the trustees of the University of Tennessee and the Tennessee Board of Regents, which is responsible for East Tennessee State University.

At ETSU, the colleges of medicine and the nursing are known as primary care schools. A community orientation permeates this institution, not just its health-related colleges but throughout the entire university. This is so much the case that recently when it was proposed that primary care be removed from the College of Medicine's mission statement, the chairman of the Department of Surgery defended leaving it in. Community orientation, primary care and interdisciplinarity are seen as central to the institution's purpose.

The university has two divisions - Health Sciences and Academic Affairs - each with a vice- president. The Division of Academic Affairs has four colleges: education, business, applied technology and arts & sciences. The Division of Health Sciences is comprised of three colleges: nursing, medicine, and public & allied health. The three health-related deans meet on a regular basis and the dean of medicine also serves as divisional vice-president.

One of the most interesting features of ETSU is its interdisciplinarity in the health sciences. This interdisciplinarity can be seen in its structure, the interpersonal relationships among the health-related deans, and in its curricula. The Division of Health Sciences maintains an interdisciplinary curriculum committee and division students are exposed to interdisciplinary approaches in the rural medicine, rural nursing, health education and primary care programs. Additionally, there are nine interdisciplinary courses.

In 1991, the university received a community partnership grant from the W.K. Kellogg Foundation that emphasized community perspectives, out-of-hospital education and multi-professionalism. Representatives of the university attribute their apparent success in emphasizing out-of-hospital, primary and multidisciplinary care experiences and training opportunities for their health science students to this grant.

Context

What distinguishes the ETSU geographic area from the rest of the United States is its rural character and, as in most of the rural U.S., there remains a shortage of hospital beds and health care providers. The health care industry (private hospitals, government hospitals and health professions education) contributes approximately $900 million to the area economy, making it the largest employer. As elsewhere in the United States, the health care market, as it is called, is very volatile. Both large and small hospitals are bought, sold and subsumed into systems of hospitals, some for-profit and some non-profit. In something of a twist, a not-for-profit hospital has recently purchased hospitals that had been part of a for-profit system.

It should be kept in mind that in the United States, hospitals - not medical schools - are responsible for the postgraduate education of physicians. For the most part, postgraduate education is paid for via the delivery of patient care services, thus blending together the funding of the educational system for health personnel and the health care delivery system. ETSU does not have its own teaching hospital; students receive clinical experience in community hospitals and at the Veteran's Administration facility.

In the U.S., Medicaid, a federal/state partnership, covers most poor people as well as seniors and children who cannot pay for health care. Recently, the State of Tennessee replaced the dominant version of Medicaid with the TennCare program, which required those depending on Medicaid to sign up for a separate program. In order to control costs, the state took a fixed sum of money and allocated it for the care of all persons who signed up. Tennessee residents who do not sign up for TennCare are ineligible for benefits. Providers who want to participate place their names on a list; each individual was assigned a provider from this list.

TennCare payments are biased toward primary care providers. The $1,200 per year that the private insurance companies receive from the state to pay for the total care of each TennCare participant makes those insurance companies emphasize the delivery of preventive services by primary care providers, not the sub-specialists whose charges would be much higher. Suffice it to say that both the private and public funding of health care in the area greatly affects the present and future income of providers.

Overall then, the major contextual factors that shape ETSU and its health professions education-related programs are:

- the rural character of the area;
- the federal support for medical education through the Veteran's Administration Hospital;
- the fact that the health care industry is the area's largest employer;

- the necessary links to local hospitals because the university does not have its own teaching hospital;
- the TennCare program and its emphasis on primary care; and
- the flow of Medicaid graduate medical education funds through the medical school.

Curriculum

Within the Division of Health Sciences, each college maintains one or more curricula. The medical school and the nursing school each have a college-wide curriculum. The College of Public & Allied Health maintains several curricula, including physical therapy, public health and communications disorders. Additionally, these three colleges co-operate in a multi-disciplinary program in rural primary care, commonly referred to as the Rural Track. The Rural Track is the curricular component of the W. K. Kellogg Foundation Community Partnerships for Health Professions Education Program. The courses, research and service opportunities of the Kellogg partnership program take place in two rural counties and include full-time university faculty who are based in rural Rogersville and Mountain City, both located one hour from the ETSU campus.

All curricula in the Division of the Health Sciences emphasize experiential learning in addition to the more traditional knowledge orientation based upon the acquisition of facts. Community-based experiences begin early in the students' study and are designed to change the socialisation pattern of the students, thus enabling them learn about the dynamics of rural communities, the culture of its people, and how to look at providing care as more than service delivery. The seeds of this division-wide orientation were planted in the Rural Track program and are viewed as a sign of its success. In this section, emphasis will be placed upon the curricula of medicine, nursing and public health, especially the Rural Track.

Approximately 25% of the Division of Health Science students opt for the Rural Track. While public health students are under-represented in the Rural Track, all public health students are oriented toward population-based health care rather than the curative approach common to medicine and nursing.

The Rural Track is an interdisciplinary curriculum that uses the cohort approach. Two groups of students start the Rural Track each year. They select a rural community (Rogersville or Mountain City) they want to learn in and stay together for the first two years of their education. They spend one day per week in the community; the other four days, students are on-campus and the curriculum is a traditional approach in both content and delivery.

Rural Track courses are team-taught by faculty from nursing, medicine and public & allied health. Teachers and students are not differentiated by discipline. For example, the faculty

consistently spoke of "the students" rather than medical students, nursing students or public health students. Presently, there are nine courses: patient communications, rural health, community assessment (three courses), health assessment (three courses) and a for-credit community project.

In addition to mastering course material, students learn about the dynamics of rural communities, local culture and the impact of these on health care delivery, prevention and public health intervention. They learn clinical skills away from the large hospital setting. Students learn about the children's educational system and have conducted health education sessions in the local schools. They visit nursing homes and learn how families relate to their elderly. They prepare children for school by giving them required immunisations. They attend athletic events and participate in other activities that demonstrate the ways a small community comes together.

The Rural Track is under the purview of the division's interdisciplinary curriculum committee. This committee includes faculty members from all three Division of Health Science schools. As would be expected, the schools had great difficulty coming to an agreement about what would constitute an interdisciplinary curriculum, what would be expected of the students, and who would teach the courses. However, over time, the Rural Track has been so successful that controversy has waned and the division has looked for ways to take the successful modules and curricular elements from the Rural Track and diffuse them into the wider curricula in the division.

In 1996, an interdisciplinary task force addressed concerns that innovation in the Division of the Health Sciences had become confined to the Rural Track program and suggested that successful modules and curricular elements of the Rural Track be "transported" into the general curricula of the three schools. In 1997, "Practising Medicine", a two-year clerkship experience required of all medical students, was added to the curriculum. Students spend one week of each year one-on-one with a community-based practitioner providing direct care to patients and their families. In 1997, the College of Nursing rewrote its curriculum to include several elements of the Rural Track program, especially experiential education. Nursing students are placed at the Johnson City homeless clinic, the primary care clinics in Rogersville and Mountain City, and other out-of-hospital and community-based sites. Another example is the new division-wide Health Communications course that now enrolls all medical, nursing and public health students. The course uses the patient-actors and clinic sites developed by the Rural Track.

This report also suggested that all curricula emphasize leadership, primary care and prevention. In one rural county, students studied formal and informal community leadership while gaining an understanding of roles that youth can play in seeking and serving on public and non-profit organisational governing boards. Rural Track students were also

provided slots on the overall Community-University Governing Board of the Community Partnership program, and national and state presentation opportunities were provided.

Admissions

The entire Division of Health Sciences (medicine, nursing, and public & allied health) at ETSU is known by applicants as a primary care school with a rural orientation. Its reputation is so strong that applicants tend to be well suited to the curricular focus and teaching practices.

Admission standards and processes vary among the colleges. In the College of Public & Allied Health, there is no college-wide admissions process; students are admitted to a specific department (i.e., physical therapy) and are required to meet standards appropriate to the specific program.

The College of Medicine maintains an admissions committee of 36 individuals, comprised of approximately 1/3 students (four from the Rural Track), 1/3 community residents (e.g. the head of a local TV station; a former small town mayor), and approximately 1/3 ETSU faculty members (not necessarily from the College of Medicine). All members of the committee have an equal say in the admissions process.

While the overall goal is to select individuals who will practice primary care in rural communities, the written criteria do not emphasize community orientation at all. The reputation of the program tends to attract students with a compatible orientation towards primary care. Additionally, the committee tries to influence the pool of applicants by visiting undergraduate schools and reaching out to children between the ages 11-15.

The first screen in the admissions process is the academic capability to do the work, measured by undergraduate grades, test scores and a written essay. Applicants are interviewed by committee members. In 1997/98, for example, the average age of students admitted was 24 years, slightly above national norms.

The College of Nursing takes a program-by-program approach to admissions. For the BSN program, there is no process or criteria emphasizing the community orientation of the nursing program. In fact, students are admitted solely on the basis of their previous academic record. There are three graduate level nurse practitioner programs. Each one has a separate admissions process. A fourth area for graduate study is a nurse administration program conducted in collaboration with the College of Business and the College of Public & Allied Health.

Institutional Considerations

The primary care provider disciplines are very strong at ETSU. In medicine, for example, the Department of Family Medicine is very strong. Evidence for this assertion can be seen in several ways. It is a large clinical department conducting community-responsive collaborative research and teaching. For example, the interdisciplinary patient communications course is co-taught by a nursing faculty member and a faculty member from the Department of Family Medicine. There is a required family medicine clerkship equal in length to those in surgery, internal medicine, paediatrics and psychiatry (eight weeks). There is no community medicine department and therefore, the Department of Family Medicine has extensive rural and community-oriented responsibilities in the college, including rural placements for medical students.

The system used to reward faculty (the promotion and tenure process) is described as a "decentralised" one, meaning that the dean of each college has the prerogative to overturn the review by a department in a given college. It also means that each faculty member is given an annual review of progress toward promotion and tenure rather than waiting until the last year in what is usually a six-year process. Faculty members in the Division of Health Sciences do not see any incompatibility between getting promoted and doing community-oriented work. Scholarship is emphasized in all work, including community-oriented efforts; "scholarship": is not used interchangeably with what is called "bench research". Each department has the prerogative to build in criteria for promotion consistent with the individual's field of interest, etc. That is to say, a physiologist would be judged differently than a primary care paediatrician.

There have been few exceptions (not many but some) to department-recommended promotion and tenure decisions. These exceptions go both ways: Recommendations from departments to promote and tenure, and recommendations from the department to not promote and tenure. These exceptions have occurred at the level of deans and the level of the president of the university. However, there is a consistency about decisions to overturn: The compatibility of the faculty member with the community-orientation of the institution.

Evaluation

The Division of Health Sciences does not maintain a comprehensive program evaluation system, i.e., one that can feed back opinions of graduates to curriculum committees and other bodies. There is, however, a comprehensive program evaluation system for the Rural Track. The overall administrative outcomes of the Rural Track are seen as the following:

1. The program created and sustained an infrastructure that links the institution with its communities. That is to say, there is a governing board with community representation; there is a committee in each partnership community; there is a community academic

educational centre in each partnership community.
2. The program reinforces student interest in rural primary care.
3. The program reinforces the importance of interdisciplinary care and education.
4. The program provides community-based services and has improved health indicators in each of the areas served.
5. There are overall curriculum changes that can be attributed to the Rural Track. For example, "Practising Medicine", a community-based component is required of all first and second year medical students.
6. Community people teach in the program.

In terms of impact on partnership communities, the Rural Track cites the following facts:
1. Since the program began sending students to the rural areas of Mountain City and Rogersville, there has been an overall drop in mortality and specifically mortality from heart disease.
2. In the areas served by the ETSU programs from 1981-2000, there has been a 43% reduction in the number of Appalachian counties that were designated health professions shortage areas.
3. In 1997-98, an estimated 6,000 clinical contact hours were attributed to ETSU family practice residents and nurse practitioner students; in 1998-99, the figure doubled to 13,000 contact hours.

For all students in the medical and nursing schools, the following commencement objectives are expected:
1. Clinical skills appropriate to the student's discipline.
2. Effective communication: Every graduate listens attentively and communicates clearly with patients, families and health care team members. The graduate establishes the repoire necessary to form and sustain an effective therapeutic relationship.
3. Prevention, diagnosis and management: The graduate encourages health promotion and disease prevention and is able to diagnose and manage health problems of individuals, families/or communities.
4. Social and community contexts of medicine: The graduate provides guidance by responding to the many factors that influence health, disease and disability. Attention is paid to factors besides those of a biologic nature. These factors might include cultural, familial, psychological, economic, environmental, legal, political, and spiritual aspects of health care seekers and of health care delivery.

Faculty and Institutional Leadership

ETSU's leadership stands out for several reasons. The vision for the university has been sufficiently articulated - both internally and externally - so that no one is accepted as an institutional leader who does not have a set of values consistent with that of the health

schools. Simply put, experienced administrators who do not share ETSU's well-articulated community orientation will not be offered a position. All of ETSU's presidents have accepted and effectively articulated this community orientation, thus making it easier for the deans and faculty members to behave in ways consistent with stated philosophy. This is particularly the case with its most recent president, who was both the dean of the College of Medicine and vice-president of its Division of Health Sciences before becoming ETSU's president.

Finally, the notion of linking the university's programs with the articulated needs of people in communities is so pervasive at this university that colleges outside of the Division of Health Sciences are now forming links with communities and responding to articulated needs in education, theatre and business. For example, many colleges offer community-based continuing education. The College of Education has a program designed to meet the needs of teachers in Tennessee's rural schools. The theatre department has written and mounted plays based upon local history, including the story of a small town forced to move when the Tennessee Valley Authority flooded their valley and the railroad heritage of a separate community. The historical material for these productions was gathered from residents and local businesses.

Involvement in Public Policy and Government

ETSU does not have formal linkages with local, state, or national governments. In other words, there are no formally established committees whereby the university can systematically and routinely influence public policy. At the same time ETSU, especially its Division of Health Sciences, is heavily involved in public policy. For example, the university is known at all government levels as a community-oriented, multi-disciplinary, primary care school. When elected officials and their staffs want input on these subjects, they routinely call upon ETSU representatives. The leaders of the Division of Health Sciences routinely seek out opportunities for input into the political process. For example, the university is represented on Tennessee's TennCare Commission. There is regular communication between Tennessee's federal representatives and the university, and the elected officials from ETSU's region are regularly briefed on areas of interest to the university and its community.

Community Involvement in the Institution

Overall, there is little formal opportunity for community representation in decision-making at the university. There are, however, some important exceptions. As discussed earlier, community members serve on the medical school's admissions committee. For the Rural Track, community representatives serve together with university deans on a

community-majority governing board. In this way, they exert significant influence on the nature of the curriculum, student experiences in the communities, budget and other policy matters. And community members participate in the teaching process by serving as simulated patients in case studies.

Faculty Development

For the Division of Health Sciences at ETSU, the Rural Track has provided the impetus for multidisciplinary faculty development efforts. Faculty development has evolved from specific curricular needs for new faculty to teach in interdisciplinary Rural Track courses. Efforts have extended to community-based faculty involved in precepting students. Most recently, the division-wide Health Communications course was facilitated by these experiences and engaged over 30 faculty members from three different colleges.

Conclusion

ETSU has firmly established its multi-disciplinary community-based approach to health professions education. Students in medicine, nursing and public health are encouraged to adopt a team approach to health care service delivery and, further, to view service delivery in the wider context of health promotion. Graduates have learned to expect participation from the communities in which they serve and - more importantly - expect to participate in the communities they serve.

The Division of Health Sciences has structural ties to governmental and policy decisions, both through their participation in TennCare and by virtue of their reputation.

Statistics show that ETSU's approach has succeeded. Health indicators in partner communities have improved. Since 1991, thirteen health professionals have been recruited to serve in the partnership communities.

Most importantly, the community-based approach has been institutionalised. The successful curricular innovations of the Rural Track program have been replicated in the wider curricula. Other colleges at ETSU have increased their community-based offerings and training opportunities. Division of Health Science administrators play leadership roles in the larger institution. All in all, the ETSU experience has been a success and should be held out as a model for other schools.

Faculty of Medicine, Universidad de la Frontera

Christopher E. Urbina

The Universidad de la Frontera is the largest university located in the city of Temuco in the Arucanra region of Chile. The city of Temuco is located 700 kilometers (430 miles) south of Santiago, the capital of Chile. This area of Chile is sparsely populated with a density of 24 persons per square kilometer. Of the approximately 823,000 inhabitants in the region, 35% are under 15 years of age. This region also contains the largest concentration of Mapuche, the local indigenous group, comprising 30% of the population. The primary business and economic development activities are agriculture, forestry and light industrial manufacturing. In the last several years, Temuco has emerged as one of the largest urban business areas in the southern part of the nation. It is close to several large recreational lakes that are of great pride to the Chilean people. Many tourists from Chile and throughout South America and Europe visit the region annually.

Institutional Context

Despite the significant political changes in Chile during the past several decades, the Universidad de la Frontera has maintained its long and well-established commitment to the community. According to university leaders (the president and deans), the university is committed to develop rural areas sustainable at the community (local) level and they are willing to use the university as a vehicle to improve local technology and its application, to encourage health promotion, and to sustain local economic development. Through these broad, stabilizing goals, they intend to improve the health of local communities with a commitment to ethnic, socioeconomic-disadvantaged and geographically-isolated, vulnerable groups.

Concurrently, the local and regional governments by law have a commitment to guarantee the health of the people. The Universidad de la Frontera has formed a strong bond with the local and regional governments, a bond that allows them to bring together their resources to provide health services and improve the education of health professionals at the community level.

Before describing the current curriculum, it is important to briefly review the historical development of health professions education at the Universidad de la Frontera (Stockins & Pantoja, 1997). The University of Chile in Santiago financially and academically supported the first health professions education program at Universidad de la Frontera. The Universidad de la Frontera initially established a small nursing and a matrona or midwife program in 1963. Shortly after, a program in nutrition was developed (1966), followed by

medicine and medical technology (1971), and physiotherapy (1974). The School of Medicine, which is composed of all of the health professions programs (nursing, medicine, medical technology, physiotherapy, midwifery and dentistry) was formally established in 1981. Finally in 1992, the dentistry program was developed. During the development of each health professions training program, the faculty formed a cohesive group with the single purpose of training quality health professionals within the community. There are now approximately 340 faculty members (full and part-time), 48 administrators and over 1,200 students distributed throughout the various disciplines (Stockins & Pantoja, 1997).

The School of Medicine is organized vertically in each of the health professions training programs: nursing, physiotherapy, nutrition, medicine, obstetrics, dentistry and medical technology. Each program has its own head and discipline-specific faculty. The faculty is then horizontally organized into divisions of basic sciences, pre-clinical sciences, internal medicine, surgery, pediatrics, public health and other specialties. The entire faculty is responsible for the education of all health professionals regardless of discipline.

All pre-professional health students begin their studies with approximately two years of basic science including cellular biology, mathematics, anatomy, histology and beginning chemistry; students also take electives in the cultural, humanistic, and socioeconomic characteristics of patients, biostatistics, and English. The basic science curriculum is equivalent for all students. Courses are taught on campus and follow a traditional lecture format. Successful completion is required for a student to pass the first two years.

Each health professions school accepts approximately 35-75 students annually. Although a small number of government loans and scholarships are available, students are responsible for paying for their own academic programs. Tuition is approximately $2,500 for medicine and dentistry and slightly less for the other schools.

Nursing accepts approximately 50 students per year into a nine-semester course of study. In addition to a basic nursing education, graduates of the nursing program develop skills in family and community health with a special emphasis on prevention and rehabilitation.

The School of Medicine accepts approximately 45 students per year into a 14-semester course ending in the seventh year with a practicum experience. Medical school graduates are able to provide acute and long-term health care to individuals in the context of the community with a focus on primary health care. Their training not only emphasizes individual clinical skills with a strong scientific background, but also prevention and health promotion.

Nutrition accepts 40 students per year into an eight-semester course. Nutrition students apply sound scientific knowledge and technology in the education and maintenance of proper nutrition and diet. The Matrona program (midwife) accepts 35 students annually

in an eight-semester course. Matrona students learn how to provide prenatal and postpartum care, and to assist low-risk deliveries within the context of the family and the community.

Dentistry accepts 42 students yearly into a 12-semester course. Dental school graduates are able to prevent, diagnose and treat problems common to oral dental health care. Medical technology accepts 35 students yearly in eight semesters. Medical technology graduates are able to perform basic examinations in the lab including clinical, microbiology, parasitology, hematology and management of blood products. Physiotherapy accepts 35 students per year into an eight-semester course. Physiotherapists assist individual patients in psychomotor, neuromotor and biomechanical movement. A physiotherapist's goal is to develop specific skills and a knowledge base in the primary prevention of injuries and rehabilitation.

Although the School of Medicine is relatively new, the strength of the faculty has been its willingness to develop a cohesive, community-oriented educational program for each discipline. The present and former deans as well as the department heads of each program are committed to the development of both community-oriented faculty and students. In the early 1990s, the School of Medicine went through a rigorous re-evaluation of the curricula. This evaluation led to further ties with the community and resulted in the current curricula in each health professions discipline. The dean and other faculty members are quick to point out that because of this community orientation, the institution has been considered favorably for multiple internal and external-funded initiatives.

The School of Medicine has been designated as a Collaborative Center for Medical Education in Practice by the World Health Organization. They have worked with programs including the International Clinical Epidemiology Network (INCLEN) and the Rockefeller Foundation to develop a training program in clinical epidemiology for master's level students as well as for their own faculty and as a center for master's training in South America. They are actively involved in the Network: Community Partnerships for Innovative Education, Service and Research, an international organization dedicated to supporting community orientated health professions training. Their curriculum and faculty have been trained by faculty from McMaster University in Canada and supported by the Canadian International Development Agency. Finally, they have been funded by the W.K. Kellogg Foundation as one of several UNI (Una Nueva Initiativa) community-campus partnership projects in Latin America. The UNI project solidified the direct relationships with local health services and community organizations.

Other successful collaborations with the Universidad de la Frontera include the University of Tucuman, Argentina; the University of Glasgow, United Kingdom; the University College of Dublin, Ireland; and the Autonomous University of Madrid, Spain. Each of these external learning programs have led to further development of the curricula and have strengthened the strategic direction developed during the early 1990s.

Admissions

Each of the health professions programs selects its students through a formal process. Students are required to submit primary school (high school equivalent) teacher recommendations and to take a national exam. Students with higher scores and high evaluations generally have a choice of health careers, but may apply to any health professions training program. Most of the higher achieving students favor medicine and dentistry as health careers.

The university informally encourages students from rural areas and indigenous groups to apply to the health professions training programs. Often, due to inadequate academic preparation and early primary school deficits, applicants from the rural and indigenous populations are unsuccessful. Only one or two indigenous members matriculate each year. Once accepted, geographic distance as well as socioeconomic and cultural barriers make it difficult for rural and indigenous students to enter and stay in school, although multiple strategies and efforts at retention have been attempted.

The School of Medicine Curriculum

Following two years of basic sciences, third, fourth, and fifth year students study the clinical sciences, including pathology, physiology, parasitology, microbiology, public health and each of the subspecialties including internal medicine, public health, neurology, pathology, pharmacology, epidemiology, obstetrics and gynecology, pediatrics and the subspecialties of surgery (See fig. 1). These courses are taught in a traditional lecture or seminar format. The clinical sciences include hands-on clinical experiences, laboratory experience and didactic lectures.

The problem-based learning tutorial is a unique component of the curriculum and deserves special attention. During their third and fourth years, medical students work with students in other disciplines in problem-based tutorials in a community setting. Led by a tutor (a member of the School of Medicine), students work as a group in solving a clinical paper case over two half-day sessions. Each paper case study includes a very simple historical summary of the patient's problem, physical exam and pertinent social family and past history related to the problem. For each of the cases, faculty establishes a set of learning objectives. Faculty members report that students appear to be well prepared for exploring the problems associated with each case.

1st Year	2nd Year	3rd Year	4th Year	5th Year	6th Year	7th Year
Basic Sciences		Clinical Sciences			Internships	
• Math		Pharmacology	Microbiology		Pediatrics	
• Anatomy		Dermatology	Anatomy		Surgery	
• Chemistry		Internal Medicine	Maternal and Child Health		Obstetrics & Gynecology	
• Physiology		Epidemiology	Internal Medicine		Specialties	
• Histology		Pathology			Rural Internship	
• Embryology		Community Health Promotion	Surgery		Psychiatry	
• Social studies		Public Health	Surgical Sub-specialties			
• Psychology		Obstetrics & Gynecology				
• Biochemistry		Pathophysiology				
• Biostatistics		Neurology				
• Genetics		Psychiatry				
• Electives						
• English						

Figure 1. The Universidad de La Frontera Medical School Curriculum

In the second session, the students return, having explored different learning issues based upon the first day's activities and share their new-found knowledge with the other students. The second session is devoted to a discussion of these learning issues with each student presenting what s/he learned. Time is allowed for discussion and critique of the information. The students identify the health issues from the paper case within the context of local and regional problems. They identify the appropriate roles of other professionals within the context of solving the clinical problem. They also view the paper case problems within the context of family and community. Students learn to establish effective communication and develop good interpersonal skills, not only with other students but also with the tutor. They understand the importance of working in a group to optimize the solution to a problem.

The tutorial groups tend to be lively discussions with everyone participating in the solution to the problem and thereby contributing to the education of the other students. Early on, students identify with their own professional role. As the group matures, students learn a great deal from each other and often traditional stereotypic professional roles disappear.

Problem-based learning tutorials take place in a clinical setting in a community clinic. Tutors are selected based upon their area of interest in the curriculum. They are trained and evaluated periodically. Most tutors are health professionals within the community clinic. At the end of each session, students are asked to critique themselves, each other and the tutorial process. This evaluation is critical to the development of students and the tutorial process.

In the sixth and seventh (final) years of medical school, students rotate through the various clinical departments within the regional hospital working along side other health profession students to take care of and manage patients (See Fig. 1). Supervised by faculty, students

often interact with residents from the various clinical departments. Despite time in both tutorial sessions and ambulatory care clinics (public health/primary clinics throughout the region), the majority of student training takes place within the hospital setting. They also participate in an on-going interdisciplinary community experience with other advanced health profession students. The public health/primary care clinics and the interdisciplinary experience will be described later.

Evaluation

The evaluation of all students includes a traditional formal evaluation after each course, an annual exam and a national exam. The students are also evaluated through essays, checklists, and both peer review and self-evaluation in the tutorial process. The Office of Curriculum Evaluation is responsible for tracking the progress of all students. They compile annual evaluations for each student and make them available to the course co-ordinators and division heads who then use them when making promotion decisions.

The Office of Curriculum Evaluation also co-ordinates the university-wide evaluation, which includes evaluation of the School of Medicine. According to the head of evaluation, graduates of the medical school perform equally to other students from other regions on the national exam. Anecdotally, clinical faculty members believe these students are better prepared for their clinical years when compared to students who have not been exposed to the Universidad de la Frontera curriculum. They require less supervision. They easily find their way around the community clinics and are more comfortable with other health professionals. Several students commented that they feel anxious that they "do not know" as much as their fellow students from other programs, but they are often reassured when they see patients. They realize their interpersonal, clinical and critical thinking skills are developed far beyond other students. They often find it easier to work in smaller groups because they have worked with other health professionals. No national data were available at the time of writing to review scores and even if it were, it would be difficult to compare these students to other students since most other medical schools have introduced problem-based learning to a much lesser degree than the Universidad de la Frontera.

An annual, overall evaluation of the School of Medicine and the university's community involvement has been carried out since 1991 through the UNI project. The main outcomes of the process evaluation include increased training opportunities for students in community settings, successful partnerships among the three-party committees (community, health service and university representatives) and expanded health services including public health services, women's health, nutrition services, family planning, immunizations and primary health care.

Faculty Development

Since the inception of the curricular changes, faculty development has been inextricably linked to the process. Most of the School of Medicine participated in problem-based case development, tutor training and student evaluation training presented by McMaster University. Faculty members are also encouraged to participate in the Master in Clinical Epidemiology program and other educational programs offered at the university. Through mechanisms established in the UNI project, university-based faculty participate in the ongoing training of community-based faculty (practitioners).

Research

Research is a slowly evolving aspect of the Universidad de la Frontera. The School of Medicine has been the recipient of multiple grants from the National Fund for Scientific and Technological Research, the Chilean Foundation, and the research office of the university. Many faculty also participate in research funded through other countries. The research agenda is broad and includes prevalence of gall bladder cancer, diabetes, the pathology of heart failure and coronary artery disease, coronary risk factors, electrophysiology of the cardiovascular system, the prevalence of specific diseases in the community, and immune response to vaccines. Several faculty pointed out that their research suffers mainly due to a lack of resources within the university and limited funds available to them from local, regional and national sources.

Although faced with limited resources, the Ministry of Health is actively seeking the collaboration and co-operation of faculty within the School of Medicine to explore various health conditions relevant to the community. Such community-oriented research topics have included the study of the transmission of infectious diseases, including tuberculosis, and the epidemiology of chronic health problems such as heart disease, diabetes and joint disease. These projects have slowly increased in size and funding from the late 1980s to the present day.

Community Involvement

The most prominent component of the Universidad de la Frontera has been its outreach into the community. During the reorganization of the curricula, supported in part by external funding from the UNI Kellogg project, the university developed partnerships with the local and regional directors of the Ministry of Health. These partnerships include transfering university resources, expanding services, remodeling facilities, hiring health personnel, and increasing the presence of students and faculty in community settings. They also strengthened the tertiary care referral network for the primary/secondary care clinics.

The region surrounding Temuco has one regional hospital, one university hospital, five primary care clinics that are supported by the county, and one secondary level clinic offering both primary and secondary care (See fig. 2).

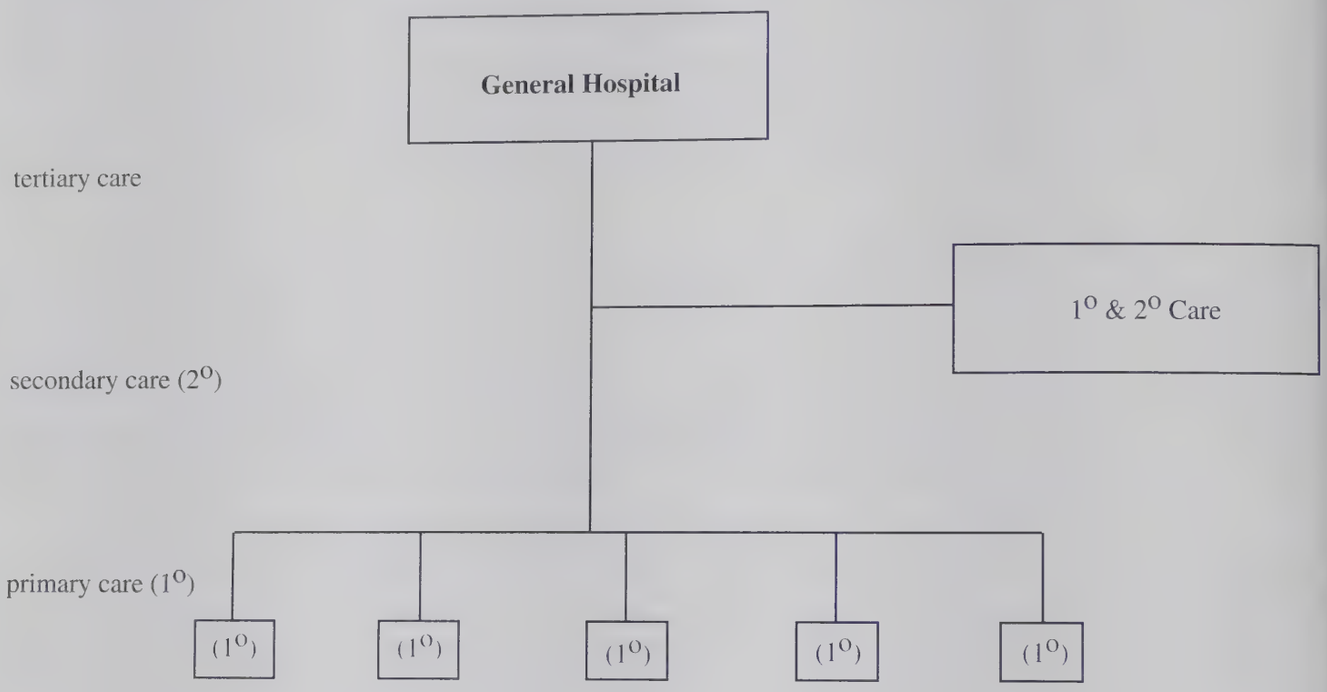

Figure 2. Temuco, Chile health care system

Each of the primary care clinics is staffed by a medical director, who has direct reporting responsibilities and fiscal responsibility to both the county and the local Minister of Health. The local clinics, with their expanded relationships to the university, have improved their health service delivery to include disease prevention, health promotion, and direct acute and chronic care. The community actively participates in decision-making within the clinic. Community advisory boards participate in the development of services, the orientation of the expanded prevention programs, and the hiring of both providers and staff.

Early on in the development of the educational link with the university, physicians practicing in the primary care clinics were overwhelmed by the teaching and supervisory responsibilities posed by the students and residents. The physicians did not feel adequate in their role as teachers. The students increased demands on their time and strained their resources. As the educational link evolved, the teaching and knowledge of the primary care clinic professionals improved and the value of the students became clear. Over the last several years, many of the primary care clinic health professionals have become increasingly enthusiastic about their teaching role and have participated energetically including serving

as tutors. Recruiting future physicians and other health professionals to the participating clinics has improved, demonstrating that the physicians and other staff members are making a worthy investment of their time.

One financial incentive for collaborating with Kellogg's UNI Project is that it has brought many resources to the community clinics. These additional resources have allowed them to increase clinic space, buy equipment and hire additional health professionals to co-ordinate both student education and community health promotion activities. Student participation has also impacted the health of the community through outreach activities at each of the primary care clinics.

One other incentive for the primary care practicing physicians has been the development of the family medicine program at the Universidad de la Frontera. The School of Medicine encourages primary care physicians to complete the family practice residency. Since not all practicing physicians in the community are residency-trained, this is a welcome opportunity to improve the professional and clinical training of the doctors working at these primary care clinics. The professional development of the community-based physician provides a secondary strengthening of the primary care clinics. The director of the Ministry of Health has praised this unique partnership of education and service. He values the way the partnership relationship has expanded service delivery and improved retention of health professionals in each of the primary care clinics.

In addition to this direct service and educational partnership, each of the primary care clinics established what they call a three-party committee (university-clinic-community). Each three-party committee is composed of a faculty member from the School of Medicine, a community member (patients, local business leaders, and informal leaders), and a health professional from the clinic committee meet periodically to address the health care needs of its community and make decisions about resources and programs at the community level. They participate in curricular changes; for example, they were instrumental in increasing the number of and length of stay of students in community settings. They also have indirectly impacted the Ministry of Health by encouraging more community involvement and expanding resources for the primary care clinics. Because the community primary care clinics are considered the health care service of last resort for many communities, this three-party relationship has increased the visibility and credibility of each partner. Community members actively participate and committees are not dominated by health professionals or faculty members. The UNI Project annual evaluations have documented favorable outcomes including improved health services, active participation by the communities, and expanded training of students in community settings.

Other Educational Programs

One creative educational initiative of note is the interdisciplinary rural internship created to meet the needs of several areas of the region with an expanded learning opportunity for students in their final year of their training. The university, through its department of public health, responded to the needs of communities with high poverty, low resources and diverse ethnic and social needs. The faculty established ties with several communities to optimize the resources of the community through the creation of SILOS or local systems of health. These SILOS bring together the university, local government agencies, local organizations, community citizens and students to address the health needs of their communities. SILOS address issues generated by the community. They meet in the community periodically to identify and develop interventions and to assess the impact of those interventions. These partnerships strengthen each component of the health system, increase the power of local citizen input, increase the likelihood of expanded resources and increase the opportunity for the transfer of knowledge, technical expertise and learning opportunities for students.

Thus far, the partnerships have addressed several community-based issues. One example of the success of the SILOS was the identification and control of a Hepatitis A outbreak in one of the communities. The SILOS identified the problem through public health surveillance, mobilized resources, and quickly controlled the epidemic. An interdisciplinary team of health professions students who live in the rural areas participated in all phases of the effort and were able to learn valuable skills while participating in a service to the community. The School of Medicine contributed technical expertise and supervision of the students. Local government agencies, including the Ministry of Health, contributed supplies, health professionals, education materials and other resources. The solution to the community problem involved a true partnership of the university and the community with a sharing of the solution and a transfer of resources.

The SILOS concept and practice has been so successful that the university plans to expand the student participation to other disciplines including engineering, sociology and psychology among others in other regional SILOS.

Conclusion

The Universidad de la Frontera has established a solid School of Medicine and curriculum and has expanded its participation in the community in the areas of health promotion, training of students and practicing health professionals, and responding to community-generated needs. They have encouraged the community to participate in the development of curricular changes and invited local health professionals to teach. They have sought and received funding that has directly impacted the provision of health service in many communities.

The Universidad de la Frontera has invited the community to participate in the university research agenda and has studied issues relevant to the community. By placing students and faculty in the community, they have increased the likelihood that students will become excited about providing services to the underserved and will return to practice in these communities. They have improved the referral network for practicing primary care physicians and indirectly help to retain health professionals within these communities. The Universidad de la Frontera has met the challenge of true community-university partnership and is a model for both developed and developing countries around the world.

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The Cuban System of Medical Education

Roberto Gomez and Christopher E. Urbina

Cuba, an island nation of 10,960,000 inhabitants, has a rich history with a strong Spanish tradition complemented by significant African influence. There is also a small Chinese minority in Cuba. The country is divided into 14 provinces plus the city of Havana. The population is relatively young, with the majority of citizens between the ages of 20 to 45. Life expectancy in Cuba is 73 years, a standard for Latin American countries and Caribbean nations (Anuario Estadistico, 1997).

Sugar cane and its by-products, including refined sugar and rum, remain the traditional industries of Cuba; tobacco and nickel are key export products. Newer industries include tourism, biotechnology and family medicine as a human resource for developing countries (Waitzkin, 1997). Health services, education and most industries are run by the state; therefore, the majority of workers are state employees.

Two major economic barriers hamper development in Cuba: the United States embargo and the economic decline of the Union of Soviet Socialist Republics (USSR). The United States embargo limits the potential economic market for Cuban exports and makes travel by U.S. citizens, including Cuban expatriates whom have family and socio-cultural ties to Cuba, difficult. The dissolution of the USSR sharply reduced both exportation of many goods, including tobacco and sugar cane, and importation of vital products such as light machinery and grain.

In the years since the 1959 revolution, health conditions have improved. Birth rates have decreased from 30 per 1000 in 1970 to 15 per 1000 in 1997. Causes of mortality are similar to those in industrialised countries. Heart disease, cancer, injuries, pneumonia and influenza are the leading causes of death (Anuario Estadistico, 1997).

Prior to the overthrow of the Bautista regime with its widespread social injustice, poverty and illiteracy, few Cuban citizens had access to health care. The political orientation and social policy of Cuba's government has resulted in universal access to a centralised health care system built upon neighbourhood-based clinics (physician/nurse dyads). Clinics are staffed by family medicine physicians and emphasize prevention and health promotion. This orientation has made a family medicine residency an honour and signifies that a student is a high achiever who has shown his commitment to Cuban social policy (See Fig. 1).

In addition to limited access to health care services, few Cuban citizens had access to education before the revolution. The triumph of Fidel Castro's ideology and the implementation of the principles of the revolution made universal access to medical

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education possible. Prior to 1959, there was only one school of medicine and admission was reserved for the affluent. There are now 21 schools of medicine, training an ample number of medical practitioners to serve the 11 million people living on the island. Cuban medical schools also train family physicians for many developing countries around the world (Ordoñez, 1995). This chapter provides an overview of medical education in Cuba in light of the principles of the 1959 revolution.

Institutional Considerations

In order to understand medical education in Cuba, one has to understand the structure of the Cuban public health system. Prior to 1959, there were 6,000 physicians in Cuba, sixty percent of whom lived in Havana. In 1998, there were 63,000 physicians, 30,000 of whom are family physicians; this works out to one physician per 166 people.

In 1982, medical education reforms instituted by the Ministry of Public Health created the basic generalist physician. This change was coupled with a curricular innovation that based medical education in the community, using neighbourhood-based polyclinics. The fundamental unit of the revised service delivery and medical education system is the "basic work unit", a physician-nurse dyad, serving the primary care needs of 300 families in its catchment area. A group of 40-60 basic work units are tied to the consultation and educational function of one of the 446 polyclinics. Paediatrics, obstetrics/gynaecology, family medicine, internal medicine, psychiatry, epidemiology, social work and nursing form the core disciplines at each polyclinic. In the city of Havana, every four to five polyclinics form the referral base to a general hospital. This network of providers and service units: basic work unit (physician/nurse dyad), polyclinic and hospital compromise the service and clinical teaching base of each school of medicine (See Fig. 1). A school of medicine may very well have structural ties to more than one network.

All providers serve as faculty members at one of Cuba's 21 schools of medicine. Each of the fourteen provinces has a school of medicine; six schools and a school of public health are located in Havana. The 21 schools of medicine and their respective hospitals, polyclinics and basic work units also serve as a referral base to the national institutes that represent specialities not available at the community level. The national institutes provide care and solve diagnostic dilemmas in seven specialities, including neurosurgery, cancer and ophthalmology (See Fig.1).

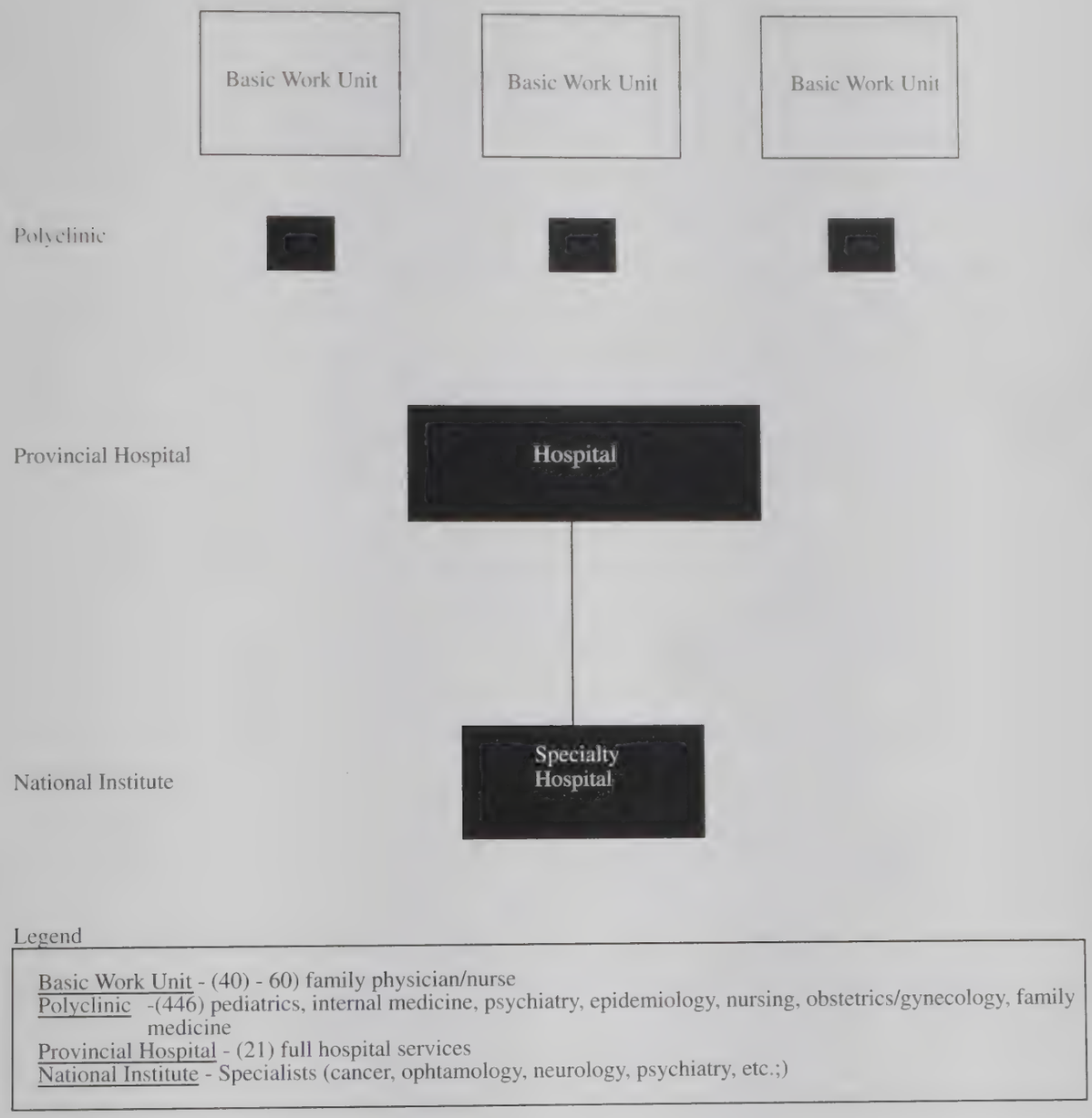
Basic Work Unit
Basic Work Unit
Basic Work Unit
Polyclinic
Provincial Hospital
Hospital
National Institute
Specialty Hospital
Legend
Basic Work Unit - (40) - 60) family physician/nurse
Polyclinic -(446) pediatrics, internal medicine, psychiatry, epidemiology, nursing, obstetrics/gynecology, family medicine
Provincial Hospital - (21) full hospital services
National Institute - Specialists (cancer, ophtamology, neurology, psychiatry, etc.;)

Figure 1. The Cuba Health care System

Admissions

The Cuban revolution also made universal access to education possible for all Cubans. Free to all, entry into the professions of medicine, law, engineering, architecture and the basic sciences is merit-based. For admission to medical school, merit-based indicators include cumulative scholastic achievement, national scholastic aptitude examinations, interviews by members of the medical school faculty, and an ideology consistent with the principles of the Cuban revolution. The best and the brightest students have the option to study medicine. The revolution has vastly broadened the potential pool of applicants to medical school by improving educational opportunities for all regardless of race, colour or economic status.

Curriculum

The structure of medical education in Cuba closely resembles Latin American and European models in the pre-clinical years: lecture-driven and in the classroom setting (Alvarez-Sintes, unpublished manuscript). In the clinical years, Cuban medical education is innovative and community-based. Their goal is to assure there will be an adequate supply of physicians for the urban areas and extensive rural sectors in Cuba.

Medical school is a six-year program, organised by years and semesters and further organised into three cycles. The first cycle consists of a three-semester course of study focusing on basic biomedical and social science. The second cycle, semesters four through ten, focuses on basic clinical science and pre-professional practice. The third cycle coincides with the sixth year of study, which is a rotating internship. The plan of study is based upon problems in health with educational objectives derived from educational principles as constructed by society and reflected in the formal educational process (Alvarez-Sintes, unpublished manuscript).

After the two-year traditional basic science curriculum, medical students begin a four-year course of study in clinical medicine at a community-based ambulatory clinic. There is limited emphasis on hospital-based practice. After the six-year course of study, a student graduates as a basic generalist physician. Those students who excel can apply for training in any speciality, of which family medicine is the most popular.

English is studied throughout medical school. Research opportunities are available through mentorship. Throughout the six years, there is an emphasis on physical education, military service and a full range of social and extracurricular activities.

In a typical Havana medical school, there are 30-40 students per year from years three through six. A typical polyclinic and its faculty of medicine have approximately 318 faculty and 476 residents. Approximately 193 residents are in primary care training at each medical school network. Medical school training in Cuba culminates with the writing of a thesis. Topics include common community health problems such as heart disease, diabetes and occupational health.

During their course of study, students must master clinical responsibilities that coincide with the 286 problems identified in the curriculum and the 760 competencies that must be mastered during the course of studies. Clinical supervision is provided at all levels of training. Referral resources are pyramidally structured, from the dyad to the polyclinic, to the general hospital and, when necessary, on to the appropriate national institute.

Level one: Treat and resolve the health problem at the dyad level without referral (self-limiting conditions).

Level two: Initiate treatment of the problem and resolve it (benign conditions).

Level three: Initiate treatment of the problem with an awareness that the problem may relapse (chronic conditions).
Level four: Identify the problem: determine it can not be resolved locally. Refer to a specialist.
Level five: Assist in the solution of the health problem in consultation with a specialist.

The curriculum is community-based (at the polyclinic) with students at different levels of training participating in patient care. The family physician is the head of the team and supervises various levels of students. Third through sixth year students work with the team. The students alternately see patients in the clinic and provide home visits for each patient they see. Their primary responsibility is to act as support staff to the health care team and as educators for the patient population. This includes community education on nutrition, public health (e.g., potable water, sanitation), family planning, mental health and immunisations. Students report back to the family physician who keeps track of all patients on his caseload. The students act as ambassadors for the family medicine clinic and assist in the development and implementation of various community-based population health interventions such as smoking cessation, heart disease risk reduction, nutrition, immunisation campaigns, public health surveillance, and communicable diseases control (See Appendix A at the end of this chapter).

The majority of Cuban medical graduates complete one to two years of social service as community physicians in either urban or rural clinics. Upon completion of their social service obligation, all physicians are entitled to pursue speciality training to become a family physician. Medical students attaining "honours" at graduation forego the social service requirement and can enter speciality training immediately.

Student Expectations

The Cuban course of studies is unique in that it takes place in the community employing the basic work unit, the physician-nurse dyad and the participating polyclinic as both the educational base and the source of patient interaction. Students must co-ordinate their course of study with the work and schedules set by the attending family practitioner. Additionally, formal lectures are presented at the polyclinics by the core professionals from the school of medicine who serve as paediatricians, obstetricians, internists, psychiatrists, social workers, nurses and professors of public health. Problem-based learning methodologies are employed in learning sessions at the polyclinic. In addition to participating in the work of the attending family practitioner, students participate in all faculty activities including health promotion, prevention, home visits, diagnosis, treatment, rehabilitation and consultation in the polyclinic and its associated hospital.

Evaluation

The basic format for evaluating students is comprised of both summative and formative examinations and assessments. Students are evaluated via regular objective examinations and are given daily and cumulative feedback in their clinical rotations. Students are monitored on an annual basis based upon their proficiency in addressing the 280 health problems and achieving the 760 competencies. The strength of these evaluations is that students receive clear written expectations with constant, one-on-one mentoring. Few students are unable to become certified in each of the competencies.

Research and Community Involvement

Research is based on the social, epidemiological and clinical needs of the community. An annual community needs assessment (CNA) is performed by the basic work unit (Sanz Delgado, 1998). The CNA is a community-based instrument directed to the practical and teaching needs of the faculty. The CNA addresses the following questions: What has been done? What are current strategies? What is our plan of action?

In general, answering the first question requires an analysis of information gathered through the collection of primary and secondary data. Morbidity, mortality, incidence and prevalence data are collected. Prior to making decisions based on this data, the general health of the population is considered. Special attention to the age, gender, economic, social and cultural characteristics of each community is considered. Once the data is gathered, it is fit into an outline which is then used to formulate a plan of action. This plan of action is community-based and scientifically sound. Each plan is given a year for implementation. The results are reported back to the basic work unit and its polyclinic; it is also presented to the community at monthly community meetings.

This model fits into a public health model of intervention in which needs are directly communicated by the community to the caregivers. The caregivers then delineate the problem, study and make recommendations back to the community for its solution and implementation. These community-based research projects have led to sophisticated studies including vaccine development, control of sexually transmitted diseases, management of HIV patients, dietary intervention, immunisations and prenatal care.

Faculty Development

Since every clinician at all levels of the health care delivery system - basic work unit, polyclinic and general hospital - is a faculty member, faculty development takes place at the community level and is a continuous process. Faculty are given clear expectations by the director of each polyclinic and the dean of the school of medicine. Faculty are well

aware of the expectations for their performance and of the criteria by which they will be evaluated. The curriculum is carefully outlined and faculty are expected to perform in the context of the curriculum and service to the community. The majority of faculty development occurs through the teaching of students, residents and fellow faculty.

Since the Ministry of Education has a role in the evaluation of the educational process within the schools of medicine, the Ministry of Education assists in the development of new faculty through formal training utilising both lectures and courses.

Other Education Programs

Residencies are available in all the traditional subspecialties, including surgical specialities, psychiatry, internal medicine and paediatrics. However, given the social mission of the government and the structure of the health care delivery system, family medicine is the most popular speciality.

Family medicine

Created by the Ministry of Public Health, the Cuban health care delivery system is based upon the family medicine model. All physicians are trained at the level of basic generalist practitioners. Upon completion of their social service obligation, all physicians can upgrade their skills so they can function as the backbone of the basic work unit. The challenge to transform a generalist physician into an integrated general family practitioner is based upon strategies to integrate the competencies and abilities gained in the clinical and basic sciences. A concurrent emphasis on psychological, social and epidemiological sciences allows the family physician to develop effective interventions in daily practice. These competencies are based upon the principles of public health with an emphasis on the health of the individual, the family and the community. The general plan of studies for a family practitioner occurs within the context of the polyclinic. It is within the consultation process that there is an integration and application of biological, psychological, social, ecological and family factors.

The formation of the integrated general family practitioner is accomplished in three stages. First, the recently graduated basic generalist physician is assigned to an accredited polyclinic where s/he completes a three-year residency in family medicine. Specialisation proceeds in five steps: 1) study integrated family medicine; 2) focus on health in the community; 3) emphasize collective and population health care challenges; 4) emphasize health care challenges to the family; and 5) study health care challenges to the individual. The primary focus of residency training in family medicine occurs in the community at the basic work unit (neighbourhood-based physician/nurse dyad) and the polyclinic. Hospital-based training opportunities in obstetrics and gynaecology, paediatrics and general surgery are also included. Significant training also can occur in schools and factories.

During subspecialty training, assessment is summative and formative and is realised in different stages through training, examination and certification. There are formative, monthly assessments that lead to certification. Every course ends with a practical clinical exam. Finally, a governing body that examines competencies, professional attitudes and practical exercises administers a summative statewide exam. Once achieving the grade of general family practitioner, the graduate may further specialise to obtain higher certification in integrated family medicine or acquire a second speciality from those offered by the National System of Public Health (including psychiatry, obstetrics/gynaecology, surgery, neurology). The graduate can also continue to develop teaching skills so as to reach the level of professor or to administer programs within the national institutes system. Further training as a clinical researcher is also offered.

The general family practitioner addresses the health care needs of the population and citizens of the Republic of Cuba and lends flexibility to the development of the individual practitioner in the realm of the clinical sciences, education and research.

Green medicine

Because of the influence of China and other non-western cultures on Cuba, the Ministry of Health has extensively investigated, developed and supports non-western therapies including acupuncture, herbal remedies and massage. These treatments are widely accepted and are offered in all polyclinics. A physician may obtain advanced subspecialty training in green medicine. The Ministry of Health packages and sells herbal remedies at all government-run pharmacies. Herbal remedies are becoming increasingly popular in the worldwide market.

Summary

The revolution of 1959 produced a major transformation of the health care system and the practice of medical education in Cuba. It allowed and encouraged the integration of health care services with the education of health care professionals at the local level. The basic work unit emphasizes not only disease in the health of the individual, but challenges health professionals to address the health of the family and the community. The community has substantial input into their health care because each community has a family physician and nurse to assist them. In turn, the students and residents learn and contribute to the health of that community. Although faced with limited economic resources, the Cuban health care and education system has produced family physicians for Cuba and for many other developing countries.

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Appendix A

Sample Cuban Curriculum, Year Five

The following, an example of the Cuban medical curriculum for the medical generalist fifth year of study, indicates the degree to which organisational role, social and public health considerations and integration of biological and social sciences are valued in the training of the integrated generalist physician in Cuba.

Educational Objective

Use an integrated approach in a scientifically rigorous curriculum to address the health challenges of the individual, the family, and the community.

General instructional objective
Provide an integrated medical intervention to individuals, families and community in their environment, stressing the importance of the integration of the biological and the psychosocial forces that are conducive to a state of health in a population. This is accomplished under the supervision of an Integrated Family Practitioner that will assist the student in public health principles, scientific method and technical interventions.

Plan of Studies

Addresses six general areas:
1. Basic competencies for the integrated medical generalist (basic medical graduate).
2. Health challenges in the growth and development of individuals throughout the life cycle.
3. Health care challenges to families, groups, and communities.
4. The integrated medical approach to non-communicable chronic illnesses.
5. The integrated medical approach to communicable diseases.
6. Rehabilitation in the community.

Thematic Contents and Objectives

1. **Activities specific to the basic competencies of the integrated medical generalist.** Activities include patient evaluation, concepts of home visits and evaluation of the patient within the context of the home environment, evaluation and treatment of patients in terminal phases of illness and the psychological impact on families. Medical

attention is directed to patients at the secondary and tertiary basic competencies in secondary and tertiary prevention. The generation of a treatment plan will be based on the biological and psychosocial status of the individual, family, and community.

2. **Challenges to growth and development at different stages of the life cycle.** The life cycle is examined from the pre-conceptual, prenatal period through birth, infancy, childhood, young adulthood, middle age and menopause. Emphasis is placed on normal geriatric development as well as health care challenges to an elderly population.

3. **Health care challenges to families and groups.** The student is asked to familiarise himself with characteristics of the family, educational groups and labour collectives in the identification and solution of frequent health care problems. This includes the psychosocial problems encountered in the daily lives of families, communicable diseases, and the impact of chronic illness on the individual and family. This also emphasises occupational health and the labour collectives and their impact on the community.

4. **Integrated medical attention for non-communicable chronic illness.** The objective is for the student to acquire and apply competencies that will help him assess primary, secondary, and tertiary prevention and control of non-communicable chronic illnesses that include such diverse entities such as hypertension, cerebral vascular accidents, heart disease, diabetes, cancers, suicide, alcoholism and malnutrition.

5. **Integrated medical attention for communicable diseases.** The student is asked to develop competencies in the identification, treatment, prevention and control of communicable diseases such as infectious diarrhoeas, parasitism, and viral illnesses. This course of studies places a concentrated emphasis on public health principles and epidemiology in population health.

6. **Community-based rehabilitation.** The objective for the student is to acquire knowledge and competencies that will enable him to identify health care challenges that manifest themselves as rehabilitative challenges and to evaluate the capacity of the individual patient for rehabilitation. This involves developing the capacity to evaluate, interpret, and execute intervention at the primary, secondary and tertiary levels.

Faculty of the Health Sciences, Linköping University

Jacques E. Des Marchais

The undergraduate medical programme at the Faculty of Health Sciences at Linköping University has changed radically since 1986, the year in which the preclinical years of the program were moved from Uppsala University north of Stockholm to Linköping University, thus allowing an integration between basic science and clinical training. (Bergdahl et al., 1991; Areskog, 1994; Bergdahl et al., 1994). At this time, the curriculum uses a student-oriented programme emphasizing problem-based learning, early patient contact, a multi-professional approach and the integration of basic science and clinical medicine. The FHS concept stresses learning rather than teaching, understanding rather than repeating facts, using knowledge in new contexts rather than retaining facts and life-long learning rather than studying to pass exams.

Linköping, a city of 140,000 in the county of Östergötland, is situated 200 km south of the Stockholm capital between the east coast and Lake Vättern. It serves as a regional administrative centre for the 400,000 residents of Östergötland County. In 1997, 23% of the population worked in manufacturing - including the SAAB aircraft plant - and 18% were employed in the health and social work sector. 15% of the population is over the age of 65 and geriatric care is a significant social care need.

Sweden is a nation of nine million inhabitants and 25,000 active physicians, the majority of whom work in hospitals. There is a shortage of physicians, mainly in primary care and rural medicine: In 1999, the physician work force was comprised of 75% specialists and 25% general practitioners. Historically, medical education in Sweden was centrally directed, with a traditional and uniform curriculum. However, as a result of the 1977 university reform efforts, Sweden's six medical faculties were given the opportunity to organise their programs to meet local needs.

Until 1986, the health care professional programs (nursing, occupational therapy, physiotherapy, and social health care) were located in Linköping and under the single authority of the county council of Östergötland. A decade earlier, the federal government decided to raise these programs to the university level. The county council and Linköping University decided to collaborate in an informal organisation supported by the federal government; as a result, all health professions programs were consolidated in the new Faculty of the Health Sciences. The University Hospital in Linköping is the referral hospital for specialised care for southeastern Sweden, an area with a population of about one million. The reorganised FHS is based upon the innovative concept of educating future health professionals by bringing them under the same administrative umbrella, creating a holistic program and offering a multi-professional team work experience.

Context

The previous dean remembers the period of consolidation as a "difficult passage" requiring tactful strategies for maintaining a collaborative climate. The leaders took advantage of the period of flux and convinced everyone that this innovative approach, far apart from traditional medical education in Sweden, would best prepare the health professionals needed by its citizens.

Many others forces can be identified as impacting curriculum development at Linköping's FHS. As in many developed countries, out-of-hospital care strategies are being pursued in Sweden. This had led to closer contact and increased co-operation with local communities. Further, the FHS has benefited from the fact that the Östergötland County Council is a full partner in its mission. There has been a willingness to work together and try new strategies. While the FHS considers itself to have been successful in establishing collaborative relationships with local communities, health services and related (social care) services, efforts to expand and solidify these relationships is considered an institutional priority.

Curriculum Activities

The Faculty of Health Sciences has defined institutional goals for all its study programs, including medical education. These goals emphasize a holistic view of health problems, health promotion and disease prevention, interpersonal skills, multiprofessional teamwork and life-long learning. The content of the curriculum is oriented to the priority health problems of Östergötland County. As Sweden is a small country and its system of socialised medicine has prevented wide-ranging disparities between geographic regions, local health issues do not differ much from the problems facing the rest of Sweden (See Table I).

The medical undergraduate program is 5.5 years long, divided into 11 semesters which are also organised into three phases for a total of 220 credits. In the medicine, nursing and physiotherapy programmes, at least 10% of the students' total time is devoted to executing community-based activities. Most of this time is spent in the community at primary health care centres.[1]

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[1] Since this site visit, a number of curriculum changes have been made. Phase III of the medical programme has recently been revised and some of the content in the semesters has been changed or moved. In the years to come, there will be some overlapping of content which may impact the school's ability to accept transfer students.

All seven educational programmes at the FHS begin with a ten-week introductory course, "Man and Society", which emphasizes community medicine. Content derives from the social, behavioural, and natural sciences. The goal is to increase understanding of those factors influencing the interplay between society and people health. Three main themes are presented: human and development, conditions of health, ethics of health care and philosophy of life.

Table I. Curricular goals by phase

PHASE I : Cell, Man and Society

- Analyse the normal structure & function of the human body; life cycle changes.
- Explain the body's compensation system for a malfuctioning organ; reaction pattern of the body due to environmental stressors.
- Perform & document a physical examination, emphasizing normal findings.
- Use problem-based learning & critical appraisal of sources of information.
- Understand relationship of people's living conditions & their health.
- Identify opportunities for preservation of health.
- Describe the organisation of medical services, social services & care and the connections between them.

PHASE II : Health and Disease

- Explain symptoms & causes of disease related to disturbed structure and function.
- Test a diagnosis using relevant diagnostic methods; be able to perform simple tests.
- Recognise connections between ill health & vital signs and suggest management.
- Explain health care problems in othercultures & countries.
- Understand variation of symptoms in relation to language & cultural background.
- Perform & document a physical examination with emphasis on deviation from the normal.
- Communicate with patients and staff and write a patient record.
- Analyse the mechanisms of the body for maintenance of health.
- Make suggestions for preventive steps against diseases.
- Describe principles of therapy.
- Analyse the organisation & economics of health care; relate this to other functions of society.
- Search for & summarise scientific information.

PHASE III : Patients, Prevention and Science

- Use a therapeutic approach & a holistic point of view with patients.
- Analyse & document findings of physical examination.
- Analyse clinical problems in relation to human biological, psychological & social mechanisms.
- Evaluate & select diagnostic methods to test a diagnosis.
- Evaluate various forms of therapy; be able to use therapy for common diseases & in emergency situations.
- Carry out preventive steps for individuals & suggest such steps for groups.
- Implement control programs independently & in cooperation with other providers & public authorities.
- Think independently & critically appraise scientific information as a basis for an ongoing development of competency.
- Evaluate economic consequences of medical decisions in relation to both the individual patient & society
- Suggest measures for the developing care in cooperation with other social organisations.
- Evaluate health care problems in various cultures & countries.
- Evaluate symptoms & make decisions about early management.
- Identify & evaluate ethical problems.

The main topics within each theme are studied in tutorial groups while students learn the methodology of problem-based learning. Also, this first semester is intended to introduce students to university study, and particularly to the educational approach that characterises the Faculty of Health Sciences in Linköping.

The objectives of this ten-credit course are:

- The student should acquire a holistic view of man by means of studying the interplay between man and environment, and the conditions of health from ethical/existential, sociological, psychological and biological perspectives.
- The course constitutes an introduction to a problem-based way of learning.
- The student should acquire a basis for the development of a scientific attitude.
- The student should develop a common set of values necessary for future work in multiprofessional groups.

Drop out rates are highest during the first semester and effect the health professions programs more strongly than the medical education. Students who come directly from a teacher-dominated gymnasium find difficult to adjust to the self-learning format at the university, to adapt to problem-based learning, and to get used to the multi-professional education format.

Phase I: Cell, Man and Society, is devoted to normal function, homeostatic mechanisms for maintaining health and the general mechanisms of disturbed function (e.g. malabsorbtion and inflammation). Students are introduced to physical examination skills with a focus on normal findings. *Phase II: Health and Disease*, deals with diseases, diagnostic methods, and principles for treatment and prevention. Practical training is concerned with identifying and describing pathological findings. *Phase III: Patients, Prevention and Science*, focuses on clinical science and includes rotating clerkships, prevention strategies, and basic science. The same educational principles continue during Phase III. Students have the main responsibility for learning and can determine the use of their time within set limits. The number of patients assigned to the student and the complexity of the problems increases within each semester and throughout the phase. Clerkship rotations are obligatory, and 20-25 hours per week is commonly spent with patients. Individual study time is still essential. Throughout the entire there is clear integration of basic science and clinical problems; about 20% of total study time is spent on basic science.

During the first course, "Man and Society", each problem-based learning group is composed of a heterogeneous group of 6-7 students selected from all FHS programmes. This is congruent with the FHS commitment to multiprofessional education and begins the process by which FHS students develop a shared foundation of common professional values for health care work, with an aim towards encouraging creative interaction and co-operation between different personalities. Groups stay together for a semester (20 weeks), long enough to allow conflicts to be resolved and the groups to function well. Each group in the medical program has two tutors during a semester, one clinician and one basic scientist or laboratory physician. The use of tutors from the basic and clinical sciences encourages a common responsibility for and ownership of the whole programme, and the students gain from working with tutors offering different perspectives. The tutors alternate one at a time, usually for periods of 2-4 weeks. During Phases I and II, tutorial groups meet twice per week for 1,5-2 hours; during Phase III, they meet just once a week, thus allowing the problem-based learning method to continue throughout the clerkship experience.

"Man and Society", held during the first 10 weeks of study, sets the stage for one of the FHS' most innovative curricular elements, "The Strand". The Strand emphasizes interpersonal skills and a holistic view of health care; it continues throughout the medical curriculum (Svedin & Koch, 1990). In the second half of the first semester, the PBL tutorial group also functions as The Strand group; this group stays together for five semesters. In later semesters, more time is allotted to The Strand. The Strand offers students early contact in the primary health care centres of Östergötland County and helps them develop interpersonal skills appropriate to clinical situations. There is a different focus each semester, and when possible, patients are selected to match the area of biomedical studies emphasized during that semester (Foldevi & Trell, 1993).

The objectives of The Strand include that the student should be able to:

- recognise her/his own reactions in relation to the patient and understand, analyse and work on them;
- recognise the patient's reactions to illness, disease and care as well as understand and analyse these from a holistic point of view;
- observe and understand the importance of the interaction between body, psyche and environment (family, work, leisure and society);
- practice a therapeutic attitude in a normal clinical contact; and
- develop interpersonal skills appropriate for a crisis situation.

It is considered important that students become aware of their own reactions and underlying feelings of insecurity, fear, empathy and warmth, sadness and insufficiency when interacting with patients. It is also important for future physicians to gradually discover the strengths and weaknesses in their own personality. In a similar way it is important to train the student to recognise, listen to and understand the patient's reactions during an interview. The student should also be able to recognise the reactions of a patient faced with illness, disease and care and to analyse these from a holistic perspective.

As part of The Strand experience, students receive supervision and feedback from the general practitioners on-site at the PHC centres. Moreover, the practitioners act as role models. Also, a supervisor, social worker, psychologist and/or a nurse participate in The Strand group discussions and supervise students during their training.

At the start of each clinical rotation, emphasis is placed on informing students of the learning objectives and their responsibilities. This is based upon FHS' commitment to self-directed learning. It is also suggested that a contract between student and preceptor be formulated in relation to objectives and tasks. The student's own activities are important, and supervision is meant to stimulate a student's clinical reasoning rather than to simply answer questions. Feedback is ongoing, and knowledge, skills and personal performance are assessed at the end of a rotation. The same structured program is used by the preceptor and by the student for self-assessment. The preceptor discusses the results with the student; students also evaluate the clerkships.

Institutional Considerations

The FHS' commitment to an interdisciplinary approach can be seen in its department structure. Instead of the traditional division of clinical and basic science departments, there are four major departments, each with basic science, research and clinical components:

- **Biomedicine and Surgery:** Divisions of Cell Biology, Dermatology, Surgery, Clinical Chemistry, Oncology.
- **Health and Environment:** Divisions of Child and Adolescent Psychiatry, Infectious

Diseases, Clinical Microbiology, Medical Microbiology, Molecular and Immunological Pathology, Obstetrics and Gynaecology, Paediatrics, Forensic Medicine, Preventive and Social Medicine and Public Health Science, Occupational and Environmental Medicine, Women's Health; Division of Social Care and Social Pedagogy; Centre for Medical Technology Assessment.

- **Department of Medicine and Care:** Divisions of Primary Care, Anaesthesiology, Pharmacology, clinical pharmacology, Internal Medicine, clinical physiology, Physics and Radiology; Division of Nursing Science.
- **Neuroscience and Locomotion:** Divisions of Geriatrics, Sports Medicine, Neurology, Ophthalmology, Orthopaedics, Oto-Rhino-Laryngology, Pathology II, Psychiatry, Rehabilitation Medicine; Division of Physical Therapy; Division of Occupational Therapy.

The faculty of the FHS is directed by a dean who is elected by the faculty and appointed by the rector in consult with the county council. The dean chairs the Faculty Board, which is composed of elected faculty members, including professors, elected students, and representatives of the county council. This board develops policy, reviews budgets, and makes decision on educational plans and syllabi.

The dean is helped in his role by various advisors and consultants, including the program directors for each program. The program directors meet together on the Faculty Committee of Education, chaired by a vice-dean. Each program is governed by a small leadership group assisted by an advisory committee composed of phase co-ordinators, instructors and others in charge of specific activities. In the medical education program, one person co-ordinates all community-based activities; this person is directly accountable to the program director. Students participate in governance activities at many levels; for instance, six sit on the Faculty Committee on Education.

The Rector of Linköping University and the three deans (FHS, Arts & Sciences, Institute of Technology) meet regularly. Research priorities are discussed and topics having a major impact on the community, for instance osteoporosis, accident prevention, and arteriosclerosis have been funded. Faculty members are expected to directed students' community-based research and maintain a community-based research agenda of their own.

Admission Process

It is difficult to get admitted to medical school in Sweden; less than 1% of applicants are successful. Between Sweden's six medical schools, there are a total of 850 positions available in any one year. At this time, the reputation of the FHS is strong enough and distinct enough - its' problem based learning methods and multiprofessional community-based program are well known - that many applicants cite Linköping as their first choice.

Consequently, the pool of applicants is strong academically and is generally well informed about the program.

After twelve years of schooling, students apply to FHS through a centralised application system organised by the National Admissions Office of Higher Education. They are entitled to indicate up to twelve institutions of their choice and can apply to all of Sweden's medical schools. On average, the FHS receives 2,000 applications per year, split into to batches (August and January). Out of those, 500 list FHS as their first choice.

In addition to considering the interest of the applicant, academic achievement at the gymnasium level is considered; most often, applicants who list FHS as their first choice and who have the highest marks are admitted.

In 1991, the FHS medical and physical therapy programs began to offer interviews as part of their admission process. At this time, 50% of the students are admitted based upon grades only and 50% based upon grades in combination with written tests and interviews.

Interviews take place in Linköping. Each student is interviewed for about an hour by two interviewers, a medical doctor or physiotherapist (depending on which program) and a community person. Interviewers are trained and use an interview guide. Topics include: motivation for entering medicine/physical therapy; interest in the Linköping program, understanding of the problem-based learning model; ability to take decisions; ability to act in stressful situations; communication and co-operation skills; personal traits such as tolerance, integrity, and judgement; and leadership capacity. The students are ranked anonymously by the interview team; there is no discussion. Results are forwarded to a committee charged with selecting the top 20 candidates in the subcohort. The committee is comprised of a chair selected by the dean, a medical educator, a physiotherapist teacher, two students and the chief admission officer.

The rationale for the interview process has been to give credit to more than grades and marks; it is viewed as a way to measure student motivation and suitability for the FHS program and, more importantly, for the profession. At the same time, it is seen as a way to minimise the number of students who fail at FHS.

While this subcohort has lower marks (average 3.5 vs. 4.94) than the rest of the successful candidates, they are generally successful in their studies; in fact, there is a lower drop out rate among them. Further, it is felt that this process fulfils the school's social mission by examining the motivations and personal traits of applicants, acknowledging that a "good doctor" is more than someone who is book smart. Secondly, this subcohort is evaluated by academics, students, and a community representative.

Student Assessment in the Medical Program

Student assessment was developed to be fully congruent with the philosophy of the school. The examinations aim to test understanding and application of knowledge; they also test personal performance in realistic situations and the integration of subject matter (Bergdahl et al., 1991). (Keep in mind that the FHS "spiral" curriculum approach means that no subject is completely studied by the end of any single course.) The grades are only pass and fail as in all Swedish medical schools. Students are examined if they meet requirements and have shown that they interact effectively with patients. They also complete an objective structured clinical examination that is a modified version of OSCE. The written examination starts from case histories similar to those studied in the tutorial groups. Some clinical semesters use Modified Essay Questions (MEQ). The questions are also similar to those asked by students and tutors (explain mechanisms; identify which questions you will ask in this situation; etc.). The oral test is conducted in groups of three to four students. There is usually a team of two examiners, one clinician and one basic scientist. This format has been chosen to emphasize and train the students in oral discussion, a formative approach to assessment.

These phase examinations give a holistic view of the student and guide the student's learning (Bergdahl et al., 1990). At the end of Phases I and II respectively the assessment begins at a primary health centre where the student is given a patient to take a history and perform a 30-minute videotaped physical examination. A primary care physician and a basic scientist then review the tape. Interpersonal and physical examination skills are assessed, and the student is questioned to test understanding of signs and symptoms according to the phase objectives. The student then defines a limited patient problem and goes to the library for more detailed information. The examiners and the student meet again after three to four hours for a report and analysis. The format is similar to the McMaster triple jump.[2] The librarians have begun to take part in the assessment of the students' information search strategies.

The Phase III examination at the end of the curriculum has four components: 1) a video-taped patient interview and physical examination followed by assessment of findings and underlying mechanisms by a clinician; 2) a four-hour written test in the format of MEQ

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[2] This exam, common to the problem-based learning methodology, evaluates how the student is able to comprehend, analyse and synthesise information. It includes a self-assessment component and does not test simple recall of knowledge. The student is evaluated in three steps, thus the name, "the triple jump":

a) the student is given a written problem and allowed ten minutes to read it. The student has to identify, analyse and synthesise the problem and extract learning objectives.

b) the student is then allowed to go to the library and consult with subject experts to research the identified learning objectives.

c) the student goes back to the evaluator with his/her findings and is expected to solve the problem and complete a self-assessment of their performance.

(modified essay question) dealing with broad clinical problems and related basic sciences; 3) a written structured analysis of a scientific publication; and 4) an in-depth oral or poster presentation, based upon a project the student has worked on over multiple semesters. In 1993, the MEQ test was replaced with a more extensive oral assessment in part because the school wanted to emphasize general skills such as critical appraisal and lifelong learning.

It is said that the majority of the students pass the examinations; however, the failure rate is about 10-15%. The definitive dropout rate is about 15%, which is within the same range as in other Swedish medical schools. Most of these dropout early on in their studies and reflect uncertainty about career choice, social and/or language problems. The vast majority of failing students will thereafter pass the exam in a second or third attempt. They are permitted to retest up to five times for a semester or phase examination. There is no particular or specific student assessment for the community-based rotations except the special examination at the end of the first ten weeks semester.

Program Evaluation

At Linköping FHS long-term program evaluation does not occur, but there is a comprehensive review of the program that includes a survey of students and faculty. However, in a recent comprehensive review of Swedish medical schools, the FHS did very well. For example, the following strengths were identified: PBL, student influence, County Council support, use of health care facilities, early patient contact, multi-professional training, critical appraisal, and international exchange. It was also noted that the examination system has improved, students feel prepared at graduation, and perform well on the National Board Examination (Linköping's failure rate of 3% compares to a national average of 7.5%.)

Research

All medical students complete three research projects as part of the curriculum. The first project is undertaken during *Man and Society*, the multi-disciplinary 10-week course, Man and Society held during the first semester. Each group of students selects a health problem resulting from the interaction of humans and the environment. They perform a literature search, formulate hypotheses, identify variables and suggest a methodology for studying the problem. During terms 3-5, students prepare a written report on a research topic. This project emphasizes the literature review but does allow for experimental work. A third project is conducted during semesters 5-11 and focuses on a clinical issue. This last project is presented as a written report, structured as a manuscript for a scientific journal and requires that the student prepare and an abstract in English. As part of the Phase III exam,

students publicly present and defend their project to their fellow students and faculty. (Hammar et al., 1995).

Medical students can also choose to participate in an introductory course in scientific research. Course participants study research methodology, study design, research planning and analysis. They then design their own project, complete the research and analyse the data. The course is built around a number of ongoing research projects covering different aspects of medical science and clinical topics. (Dahle et al., 1997).

Over the last three years, topics for community-based research projects have been negotiated between the university faculty and the County Council of Östergötland. It has been decided that research should emphasize public health and social medicine. The FHS has received a special mandate from the Swedish Central Social Affairs Ministry to study occupational injury and rehabilitation and women's health issues.

During the site visit, the community-based injury prevention project in Motala was discussed. The study investigated the impact of a specific intervention, the Safe Community program, on the frequency and severity of unintentional injuries. Motala rates were compared to another municipality that did not receive the intervention. Based upon a community needs assessment, the Safe Community program focused on five areas: injuries among the young, among the elderly, in traffic, at work and in sports. Local action groups consisted of a group facilitator and representatives from a local organisation. Activities included modifications of the physical environment, active interventions aimed at behavioural changes, and health education programs. Results demonstrated that the incidence of non-trivial injuries treated in health care decreased by 41%, while the trivial injuries decreased by 16%. The larger decrease in non-trivial injuries was observed in all ages and injury event environments. The total number of bed days at emergency hospital due to the injuries decreased by 39%, while hospital bed utilisation for all the reasons decreased by 9%. The study concluded that an injury prevention program lead by a local action group can significantly reduce injuries requiring medical care. (Timpka et al., 1999).

Community-based Activity and Community Involvement

There are three major community-based curricular elements: the Student Training Ward, community-based clinical rotations and The Strand. Clerkship rotations and The Strand were discussed at length in the section on curriculum.

The student training ward

The idea of a student training ward emerged from the multi-professional orientation of FHS and was designed to allow students to share a common frame of reference. It has become one of the most unique aspects of the FHS experience. The ward is completely

staffed by students from the various health professions programs at FHS. In this setting, students practice clinical and administrative skills. The make use of each other's professional competence, thereby preparing for future collaboration in health care teams (Wahlström et al., 1997).

This special course aims at the following:

- to provide training in team work with problems of care, nursing and rehabilitation;
- to enable students to develop an understanding for the skills of different professions;
- to satisfy the care, nursing and rehabilitation needs of the patient; and
- to enable students to develop their own professional role and, by co-operating with others, obtain a perspective on this role.

Students from medicine, nursing, physiotherapy and occupational therapy get together and form a *team in charge* of an eight bed orthopaedic ward. Most patients are elderly and present with orthopaedic problems complicated with underlying medical conditions, prosthesis problems, and social care needs. The team operates 18 hours a day, seven days per week for a two-week period. They assume full charge of the ward under the supervision of an orthopaedic surgeon, a resident and a charge nurse. They conduct daily rounds and provide for medical treatment, nursing care, occupational therapy, physiotherapy, and so on. They decide when to discharge a patient. They also have a special round in geriatrics. The daily schedule includes time for reflection and evaluation; the student syllabus emphasizes competence in clinical tasks.

The Student Training Ward has become well recognised at the university hospital and the county council. Patients appreciate the standard of care, even though the length of stay tends to be longer than on a traditional orthopaedic ward. Students report that they enjoy the teamwork aspect of the ward. Many are astonished by how much they may learn by taking full responsibility for a patient. While the two weeks are difficult and stressful, they recognise that they gain confidence in applying their knowledge to real world conditions. They learn to function in a professional role, co-operate with other health professionals, and experience a climate of co-operation and collaboration.

Recently, a qualitative analysis of the training ward experience was performed. Based upon interviews and critical incident data, the evaluation focused on how students made use of every day activities in order to collaborate and understand each other's competence. It was found that students employ three different strategies: delegation, differentiation, and discussion. Also, students were using two different modes of integration: the equal work-distribution approach and the life-long learning approach.

Clerkship rotations

All medical students will return to the same health care centre where they were assigned for The Strand for a three-week family medicine rotation. Many students also take

advantage of the county PHC centres and regional hospitals for their discipline rotations (psychiatry, medicine, surgery, anaesthesiology, etc.). From the students' point of view, it is not difficult to arrange these rotations because of a special agreement between the county council and the university.

The Strand

The Strand has been going on for many years and seems from the students' point of view quite a program asset. Citing the value of early patient contact, the Swedish Commission of Higher Education identified it as a major strength. Students take great pride in this program component.

In concluding, the students interviewed about their community-based experiences presented outstanding morale and a positive attitude towards their experiences. They recognised the value of their practical experience and understand it will prepare them well for their future profession.They acknowledged gaining confidence very early on because of their community fieldwork experiences.

Professional Integration Seminars

Professional integration at the FHS means bringing together various health professionals in the learning process. During Phases I and II of the medical program, the students have one or two theme-days in each semester. The subjects are in areas of common interest, such as emergency medicine, first aid, critical appraisal and scientific inquiry, nutrition, prevention and health promotion, teamwork in cardiac rehabilitation, leadership and conflict and accident prevention. These seminars augment their multiprofessional practical training.

Faculty Development

During the late 1980s, two educational consultants were retained by Linköping FHS on a full-time basis. They arranged courses and seminars designed to support the faculty's efforts in curriculum planning and implementation. Faculty development activities aim at promoting reflection, sharing experiences and constitute an important element of the overall quality improvement program and curriculum development (Bergdahl et al., 1991).

When the FHS was established in Linköping, an intensive programme covering problem-based learning was implemented. Mandatory courses covered specific teacher tasks and were aimed towards faculty members, participant practitioners, and clinic and community

site supervisors, and the tutorial staff involved in the multi-professional integrated activities. To become a tutor, faculty must attend a specific introductory course; doctoral students serving as tutors are obliged to participate in a basic course in education. To become a senior lecturer, courses in research tutoring, basic education theory, and previous experience as a PBL tutor are required.

With ten years of experience, the training of faculty in pedagogy has been becoming part of the FHS culture of change. There are two sorts of activities, a formal course of study, and those tailored to specific issues and offered on an as-needed basis. Staff development activities are well attended. All faculty are served, including those stationed at regional hospitals and clinics and community-based tutors. Newly appointed faculty members at the FHS are offered a basic orientation to the FHS concept on an individual basis.

Formal activities are divided into three stages:

- Stage I: a five-day activity (only two days for the medicine program) includes an introduction to the FHS educational philosophy, PBL as a method, small group skills and student assessment.
- Stage II: a series of workshops covers the role and responsibilities of PBL tutors, PBL methodology and its underlying cognitive framework.
- Stage III: a three-day workshop deepens understanding of the PBL method and covers writing cases and refining student assessment practices.

Less formal staff development activities are planned to meet specific needs that could be identified either by program evaluation activities, direct observation, suggestions from administrators, issues raised in the students' assessment of courses and staff members or by educational consultants. These activities are mostly held in a seminar format on an afternoon. During any given academic year, a total of 5-10 of these workshops might be held. Topics might include student assessment and examination, the tutorial process, using computers in teaching and learning, and so forth.

The staff development program is itself subject to evaluation. Every three years, the medical education consultants present a report to the Faculty board. In preparing the report, they consult with the program director, term co-ordinators, teachers and students; they also review current trends and issues.

Other Educational Programs

Research activities and PhD studies are available in many subjects within the following main areas: cell and tissue biology, microbiology, physiology and pharmacology, chemistry, surgery, medicine, psychiatry, community medicine, medical technology and the caring sciences. Priority is given to five strategic research areas: cancer, circulation, inflammation

and allergy, aspects of health and ageing. Each year, approximately 30 students are awarded the PhD.

A Master of Science degree is available in medicine, medical biology, biomedical laboratory science, medical microbiology, pharmacology, public health, nursing, physiotherapy and occupational therapy, social care, and health care informatics.

Leadership

Within the institution, department chairs and professors engaged in high profile research retain a powerful influence within the academic system; however, in the larger setting leadership is expressed primarily by the dean's activities and his clever political skills in maintaining a smooth relationship with the County Council. The County Council has played a major leadership role in that it publicly advocates that education is as important as delivery of care in county hospitals and PHC Centres.

FHS faculty play a vital role at the tertiary care University Hospital in Östergötland County. This is but one aspect of the long standing viable connection with the County Council, one which allows the faculty to develop an innovative program, conduct research, and develop its facilities. The County Council wants to be able to count on an up-to-date tertiary care hospital and to assure optimal distribution of physicians throughout its PHC Centres. The university has a nice opportunity to grow by developing an innovative Faculty of Health Sciences. The administration and the faculty members of FHS are well aware of their social responsibility to sustain an open dialogue and inform the community on what they are doing (Regional Health University planning document, 1981).

In this context, the dean of the FHS plays a major role. The dean, the director of the County Council and the university Rector meet regularly in a steering committee in order to influence the elected County Council counsellors and the federal parliament. This has been an effective way to keep open lines of communication among the local partners and with politicians.

The FHS relationship with the Ministry of Education seems to be very minimal, in terms of impact and influence, which is true on both sides. The ministry is not concerned with either the pedagogical format nor with the community-based program. It is the role of the university rector to maintain relationships with appropriate government ministers.

The relationship with the Ministry of Health is also minimal. While at some institutions, this might present serious problems; one must keep in mind that the FHS maintains a close

collaboration with the county council of Östergötland, the body which is responsible for the health care in the county.[3]

Impact on Health Care Policy

The Faculty of Health Sciences does not have direct or any formal impact on the development of health care policy, neither in developing and determining standards of practice. The Swedish Medical Association seems to be the most powerful social agent on this matter and on the Board of Social Affairs. However, due to the strong presence of FHS students and alumni in area health care centres and regional hospitals, it is perceived that the FHS does indeed influence the standards of practice. Many faculty members, through their association with the Swedish Medical Association, contribute to changing health policy. However, this informal and holistic approach is difficult to quantify, not withstanding the fact it is considered common knowledge.

Conclusion

Visiting Linköping FHS quickly convinces one of the programme's quality and the interdisciplinary community-based approach that permeates all activities, students and faculty. The founding fathers have succeeded in giving their institution a unique character and in establishing a viable partnership with the Östergötland County Council. In brief, capturing this multiprofessional, interdisciplinary community bound gestalt could be best portrayed by listing its particular features.

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[3] The FHS budget is derived from two sources. The federal government supports medical research and the medical, medical biology and public health training programs. The county council bears the costs of nursing education and the training programs in physiotherapy, occupational therapy and social care.

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Zamboanga Medical School, Zamboanga Medical School Foundation

Ronald W. Richards

This chapter describes a very new medical school in the city of Zamboanga, located in the western part of Mindanao province in the southern Philippines. No graduates are yet in practice and so this chapter deviates from the general outline of the others. It presents an articulation of a set of values that has guided the faculty, staff, students and the community in their efforts.

As is typical throughout the world, the Jesuit College of Ateneo de Zamboanga gave its blessing to this new school because it believes it is the "right thing to do". The present dean, Dr. Fortunado Cristobel, believes the right thing is to develop a curriculum that combines biological science, social science and hospital-based clinical experience with considerable practice experience in a village.

In many ways, the Zamboanga Medical School is still a dream, a dream shared by the dean, the board, the volunteer practitioner/faculty and, of course, the students. The dream is to help the people of Mindanao by combining the best of curative medicine with a sensitivity toward, and active participation in, population health. Should a medical school prepare its graduates to be able to provide care to individuals and care for the community in which those individuals live? Should a physician be concerned about a middle-aged man having a heart attack *and* about the incidence of heart disease in the population? For Zamboanga, the answer to all these questions is a resounding "yes" and they have set about to prepare graduates to care for villagers and the health of the village itself. Its mission and vision statements make this very clear.

Vision

. . . a medical school, which will pioneer and implement a curriculum that combines competency and problem-based instruction with experiential learning in the community. The school will be responsive to the changing patterns of health development and the needs of these communities, and will also be sensitive to the social and cultural realities of Western Mindanao.

Mission

. . . to help provide solutions to the health problems of the people and communities in Western Mindanao. Therefore, it will strive to produce competent graduates who in the practice of their medical profession are self-directing physicians, effective health administrators, applied health researchers and committed medical teachers.

Context

The population of Zamboanga, Mindanao (Region IX) is about 20% Muslim and 80% Christian. Most of the rebel action in the Philippines is occurring in Mindanao State. The social and political unrest, as it is called, is a major factor - perhaps the major factor - in the operation of the school. Although the school has never been forced to close as a result of the political situation, it has impacted the program. The Zamboanga Medical School is committed to a community-based, community-oriented medical education and students are placed in communities according to several criteria, the first and foremost one being their safety.

The population of the Zamboanga area is predominately rural. Infant mortality is very high. The unemployment rate is about 70% - most people have no jobs and eat only what they can grow or catch in the sea. There are five hospitals in the city of Zamboanga, four private facilities (for paying patients) and one regional hospital run by the Department of Health for people who cannot pay. The city's practitioners also serve as the medical school's faculty members on an essentially volunteer basis. Most of the volunteer practitioners are younger; older practitioners tend not to support the medical school because it is very different than the education they received. For example, at the Zamboanga Medical School, there are no cadavers, less time is spent in hospitals and there are no basic science lectures.

In the Philippines, practitioners earn their money by providing care to paying patients. The paying patients, and therefore the practitioners, are concentrated in the city. An estimated 80% of the region's mostly rural population have no trained health worker of any type (doctor, nurse, medical technologist, certified nurse midwife, health worker, etc.). Technically, health workers would provide the first level of care, but they are paid only 80 pesos per month by the government, making it an essentially volunteer job. For example, a village that is supposed to have a cadre of ten community health workers may only have three. And although those three are supposed to be compensated about $2.50 per month, they seldom get paid every month.

Because of its ties to the community, the medical school is governed by a special board. In the Philippines, only a college can grant degrees and, therefore, the Jesuit College Ateneo de Zamboanga has been given that status. This has lead to an unusual organisational structure at the medical school. It was incorporated in 1994 as the Zamboanga Medical School Foundation with support of this private Jesuit college. Although there is a strong association between the two schools, Zamboanga Medical School is not under the control of the College.

The Zamboanga Medical School board consists of fifteen individuals (physicians, community members, government representatives and university faculty members).

Father William Kruetz, who is also the president of the Jesuit College of Ateneo de Zamboanga, serves as board president. The board has fashioned a collective vision that transcends any of the organisations that members represent. The Medical School has the prerogative to hire the dean separate from board action.

The first class graduated in 1998 and went on to complete the Philippine government's mandatory fifth year hospital rotation. By government approval, nine of these 26 graduates have spent six months in clinical rotations and are now enrolled in a unique (the only one outside of Manila) Master of Public Health program for the second six months. None of the graduates are practising or going on to a speciality program as of yet.

Because the foundation cannot grant degrees, the Filipino Council on Higher Education had granted the Jesuit Collge of Ateneo de Zamboanga the privilege to grant the MD, MPH, and the MS (Master of Medical Sciences) degrees; it also has a nursing program that is not associated with the medical school.

In the medical school's literature, there is no mention that this is a primary care school; although, by emphasizing primary care related activities such as health promotion and disease prevention, it is a primary care school. The medical school does not have its own hospital and all of the faculty are volunteers (a small honorarium is paid to each faculty member but it is a very small amount and is not the basis for faculty involvement in the school). The dean, associate and assistant deans have unpaid administrative positions and are essentially volunteers.

Curriculum

The course of study is five years; the fifth year is a 12-month clinical rotation in the Zamboanga hospital, although, after six months the graduate can choose to be part of the Master of Public Health degree. To date, nine students have chosen this option.

The overall curriculum is organised to assure that students are at least exposed to the content areas associated with four roles: health manager, teacher/learner, researcher and clinician. There is no multi-disciplinary experience for the medical students and thus, no association with nursing students or nursing school faculty. In the Philippines, there is strong support for what is called a step-ladder curriculum. But the highest rung on the ladder is that of physician.

The curriculum is described as a combination of problem-based learning and community-oriented medical education. At this institution, problem-based learning and community orientation are inextricably linked and are viewed as a single curricular approach. Faculty serves as facilitators of the small group discussions, (not as experts) and as co-ordinators

of community experiences. After each problem there is an exam, which is scored either pass or no pass.

Decisions concerning what might be taught, what will be taught, by whom and at what location (campus or community) are made by a curriculum committee comprised of faculty members. The committee makes recommendations to the executive council of the dean. However, the dean essentially controls the curriculum, which at this institution is acceptable to the faculty, keeping in mind that all faculty members are practitioners and volunteers. They are pressed for time and, more importantly, they are of the culture of practice and not the culture of universities. In the final analysis, this curriculum is the viewpoint of one person - in this case, the dean. It is not the collective vision of a group of people about how to best educate medical students.

Weighing most heavily on the "what" curriculum decisions, are the highest priority health problems of the Zamboanga area. At this time, these are determined through a combination of Department of Public Health data, data collected by the school directly and by focus groups of community residents. At this time, students are systematically collecting data as part of their studies and that data will also be used.

During the first two years, students spend most of their time in small group tutorial sessions on such topics as trauma and infectious diseases. From years one through four, students spend about 50% of their time in a community (two months in Year One, two months in Year Two, six months in Year Three, and 12 months in Year Four). The six-month hospital experience during the third year includes rotations through obstetrics/gynaecology, paediatrics, medicine and surgery. These are required rotations, not electives.

What the students actually do in the community requires elaboration. Each student is assigned to the same community for all four years of study at Zamboanga Medical Foundation. A Department of Public Health physician who has been assigned to the community on a full-time basis supervises this curricular component. In the community, students use the problem-based learning approach and engage in a three-step process: community diagnosis, design and implementation of an intervention, and an analysis of the results of that intervention. This activity will form the core of their two-year community experience. For example, a student in year two might continue their study of a cardiovascular system problem s/he identified during year one. The student-formulated cases are sent to local preceptors for review. By design, the preceptor would be a local community practitioner. However, the lack of health professionals in many communities means that the role of preceptor often falls to the Department of Health physician assigned there.

Examples of student studies include:

"The effect of educational intervention on the knowledge additive and practices on hypertension and the prevalence of risk factors among respondents".

"Enhancing modern knowledge, attitudes and practices on sustainable nutrition in Barangay Magdaup: An intervention study."

"Health workers, diagnosis, and management of patients with ARI (annual radiographic incentives) based on ARI case management chart."

"The knowledge, attitudes, and practices of care takers on hygiene and sanitation and the prevalence of parasites among one-to-eight year old children in Liabuan."

As mentioned before, the experience of the students in a community is longitudinal: That is, they are assigned to the same community over their entire medical school experience. The communities to be used must meet several criteria, but the first and foremost criterion is that of "peace and order". These communities are not "university partners"; different years, students are placed in different communities. This underscores the need for the students to help the community to be self-sufficient. The Zamboanga town faculty, generally, do not go out into the communities to teach. The reasons stated for this were varied (too hard to get there, not adequately compensated, loss of income from seeing patients while gone, etc.).

Admissions

A group of approximately five individuals comprises the admissions committee. Three of these individuals are clinical faculty of the school and two are community representatives. The school has total control over the admissions process. The admissions process is substantially consistent with the overall mission and purpose of the school. That is, the school hopes to admit individuals that will choose to practice primary health care in areas of need. Candidates are first screened through a series of written questions, scores on a psychological test that emphasizes a candidate's reasoning abilities and an examination on content knowledge in the biological sciences. They then go on to an interview with representatives of the committee. At the present time, the school does not reach out to any of the high schools in the area to try to increase their candidate pool.

Evaluation

For student assessment, students have an examination after each of their modules. As noted earlier, the grade on each of these examinations is pass or no pass and at least one

student has been known to take this examination three times before receiving a pass. Each question has a minimum pass level associated with it and the examination is competency-based. No student fails the community aspect of their education although students are required to prepare their community diagnosis for faculty review and at the end of their fourth year present their findings to a panel for review. The school does not have any formal system of program evaluation as yet; however, creating a program evaluation system is regarded as a high priority.

Faculty Development

Faculty development is based on three premises: a different approach to medical education requires a very different teaching and learning style; practitioners are never taught to be teacher/learners in their own education; the school should find a way to reward those who teach. Informal training for the tutorial role and the preceptors' role in the community is offered to all faculty/practitioners.

In collaboration with the University of Calgary in Canada, the Zamboanga Medical School offers their faculty a master's degree in medical education sciences. This program is essentially a study of medical pedagogy. The master's program began in 1993, one year before the medical school opened. Thesis topics for the master's degree have included the following:

> Is there a difference in the performance of medical school students exposed to the problem-based curriculum based upon their undergraduate education? (This thesis compared students with a Bachelor of Science in biological sciences to those with a Bachelor of Science in nursing.)
>
> Community rotations and their effectiveness in motivating students to practice in a rural setting.

Research

Research - another component of the culture of universities - is seen by the dean and president of the board as a central function of a medical education program and, thus, is highly regarded. In their opinion, it is the generation of new knowledge that distinguishes a higher education institution from other kinds of societal institutions. Further strengthening their position is the fact that most clinicians that serve as teachers at Zamboanga Medical Foundation are said to be uninterested in and unable to conduct research. Thus, one important aspect of the medical students' experience is training to become a researcher.

The first effort at research is being conducted by the dean, who is also the head of the paediatrics department of the regional hospital. In that capacity, he has founded the Paediatric Centre for Research, which he has crafted to be consistent with the community-oriented mission of the school. Topics or research questions arise from observations as to what kinds of illnesses are seen in patients on the paediatric ward. The concerns of the Department of Public Health are also a source of research questions. For example, a high incidence of measles was observed on the ward, resulting in a study of incidence and prevalence. The Department of Public Health identified a national epidemic of Dengue fever, which has also been studied.

Institutional Considerations

There is a culture of educational institutions and a culture of practice. The Zamboanga Medical School Foundation is a school based upon the culture of practice. Therefore, there are no departments in the medical school and there is no concern for rewards. There is a split between the view of the dean - who states there will never be departments and there will never be a need to attend to faculty rank - and the president -who sees that the need to address organisational structure and the association of the school with its faculty will emerge in the not-too-distant future.

Leadership

The dean states that for leadership two things are important: having a vision and communication. He sees himself as a facilitator. That is, whatever a person wants to contribute, large or small in amounts is satisfactory. It should be pointed out that the board and the president share the vision of the dean as well and when circumstances call for intervention, the president is there to do so.

Other Programs at the Graduate Level

The school does not offer continuing medical education programs unless one considers the Master of Medical Education Sciences degree as a continuing education program. Attention has been given, however, to the role of graduate education in shaping or reshaping the graduates of the school. The new Master of Public Health degree offered to fifth year students after a six month hospital-based clinical rotation, is an example of an attempt to sustain a commitment to population-based medicine.

Involvement of the Community

There is an effort to involve the community in most of the major decisions of the medical school. In the area of admissions, for example, the school has a committee of five that reviews applicants. Two of these five are designated as "community representatives". Exactly what community representation means is unclear. The school does not have community representation on its curriculum committee but there is community input for evaluation of the community-based experiences. Overall, the involvement of the community in the activities of the school, especially for a school that claims to be community-oriented.

Ministry of Health

The involvement of representatives of the Ministry of Health is both formal and informal. There is a physician seat on the Zamboanga Medical School Board that is set aside for Region IX representation. A 1997 Department of Health policy entitled, "Revised policies and guidelines for the implementation of the partnership for alternative health sciences education", is a powerful incentive for association with the school. There is also a formal organisational agreement between the Department of Health in Region IX and the medical school. However, there is no day-to-day policy committee specially designed as a means for faculty to have a role in Department of Health policy making and vice versa.

The relationship between the school and the Department of Health is also informal. That is, because of the individuals involved there is a linkage. Examples include a Department of Health senior official who is also a teacher and involved in the Master's of Medical Education degree program. The vice president of the foundation's board is the number two person in the national Department of Public Health. In addition, the dean and the president of the board are very committed to collaboration between the Department of Health and the Zamboanga Medical School.

Observations

As stated at the very beginning, this is a new medical school. The faculty, students and the board of the Zamboanga Medical School all subscribe to its vision and mission. The fledging research orientation of the school is firmly based in solving societal problems and represents an operationalization of social accountability. However, only one class has graduated and they are not yet practising. It will be several years before a full-fledged program evaluation can take place.

Many elements of a successful program are in place: admissions, curriculum, student evaluation, community-based experience, and a balance between clinical rotations and community experience. The Zamboanga Medical program is truly community-based with adequate hospital-based rotations. Villages have been receptive to their educational role - the increased provision of health services is their reward.

Basic curriculum decisions take into account what the community needs. The successful implementation of the problem-based learning approach in tandem with the community-based experiences gives the students experience in group learning and peer learning. The focus is not so much on teaching as it is on learning.

There is no hospital affiliated with the school. This problem needs to be addressed. If it is not feasible to build its own teaching hospital, shared control over one that exists should be considered. This would solidify service and training opportunities for the students.

The faculty is voluntary at least for now. This is a serious problem in that it affects the participation of faculty members in curriculum decisions and institutional planning activities. It also determines the quality of supervision in community-based experiences in that faculty income is derived from the number of paying patients they see and paying patients tend to be congregated in the city's hospitals.

Many important issues are not under the school's control. Political stability and even more importantly, public safety is of utmost importance to a school placing students in villages. It affects the program itself, and the ability of the school to recruit students.

There is a need to shift toward a balance between culture of education and research as opposed to the present culture of practice. This is not an uncommon problem, but it will be more difficult at the Zamboanga Medical School, until such time as faculty members are compensated for their teaching and research roles.

Many program elements under the control of the school are not in place at this time: Department organisation, research and academic rewards come to mind. In spite of the fact that this school is committed to be community responsive, there are very few structures in place for the voices of the community to be heard. It remains to be seen if the school's innovative approach to medical education will survive after the dean and others become less active. This is a school in the early phase of development. The question is whether or not it will survive the second consolidation stage and then, once it's on a solid foundation return to innovation.

Change Takes a Long Time

Ronald W. Richards

In writing this book, we set out to check on those health professions schools that are community-oriented or claim to be: How well are these schools, and indirectly the Network that supports them, doing in achieving "relevance" to the society they are funded to serve?

As pointed out in the first chapter of this book, the schools studied were thought to be among the best examples available in the world. Each of these programs were considered in terms of their context, curriculum, institutional considerations, admissions, evaluation systems, research, service, community involvement in the institution, faculty development, other educational programs, and their association with policy makers (the Ministry of Health or government agencies) in their area.

Curriculum

Each school paid the greatest attention to their curriculum. Looking across the nine, it was found that the curriculum in all of the schools is community-oriented in the sense that students are assigned to out-of hospital training sites. The information gathered indicates that five of the programs use the problem-based learning approach and four do not.

It should be pointed out that control over curriculum exists on a continuum: University of the Transkei asserts total control; the Christian Medical College in Vellore, India contends with significant outside influence due to their relationship with the University of Madras.

There was little direct involvement or community representation in either curriculum decision-making processes or teaching, with the possible exception of East Tennessee State University, and to some extent Suez Canal University and the Faculty of Medicine in Wad Medani, Sudan. There was significant but indirect input of the community sector in curriculum decision-making, however. In the case of Linköping, for example, the school is very responsive to the county council. In another case, Suez Canal University has organised its curriculum around the highest priority health problems as specified by both the Ministry of Health in their region and by its own surveys. In some instances, however, the disturbing impression is left that departments within many of the schools are left to be community-oriented while the institution as a whole tends to be tertiary care focused and hospital-oriented.

Institutional Considerations

Most of the schools studied have a classical departmental structure in the sense that they are organised similarly to most universities. Two examples are quite interesting. Linköping has combined all departments into four large divisions. Although not stated, the divisions apparently function as departments. This was a move to encourage multi-disciplinary activity through organisational structure. However, more time will be needed to determine the effect of this change. The Zamboanga Medical Foundation has no departments at all. But this school is new and small, and one could predict that departments in some form and number are on the horizon.

With regard to faculty rewards, also a part of institutional considerations, a premise is that if faculty members are rewarded for community involvement they will be involved in the community. In the schools studied, the pattern is quite interesting. In the case of three schools, for example, faculties are promoted based on their involvement in community-oriented work. For one school, Linköping University, the traditional discipline-based approach to promotion is used. In fact, the faculty reward process at this school does not attend to community-oriented work at all. For very different reasons, the overall gestalt of ETSU and the Cuban system towards social accountability. And at Zamboanga Medical School, with its all volunteer faculty and its exclusive orientation towards practice, faculty rewards have not yet been considered.

Admissions

Most of the schools studied control their own admissions processes with an emphasis on tests thought to measure academic performance and therefore, by extrapolation, thought to predict performance. The exceptions are alternative ways to get into a health professions school - such as interviews or another form of test etc. University of Transkei formally recognises the general correlation of socio-economic status with test scores and has developed a multi-factorial admissions process. Additionally, they have developed a one year foundations of science program for those applicants who demonstrate interest and suitability but whose science background might make success difficult.

Three schools (University of Gezira, Suez Canal University, and the Cuban medical education system) have no control over their admissions processes, taking instead those who are sent by the national government. In most cases, the government does take into account such things as personal preference and geographical location. If for example, a community-oriented school is an applicant's preference, s/he often will be assigned.

Since most of the schools emphasize test scores, there is little attempt to address criteria that might produce graduates who are more community-oriented. Outside of those schools

who have little or no control over admissions, each program makes informal attempts to ensure that incoming students are interested in their approach. The orientation of some schools, including Linköping and East Tennessee State University, is so well known that community-oriented students are attracted by their reputations. Some schools, including University of the Transkei and ETSU, make special efforts to attract community-oriented applicants through recruitment activities. Efforts are also made to ensure that those accepted reflect the overall population of the area. Attention, is given, for example, to not denying entry on the basis of socio-economic influences - at the Christian Medical College slots are set aside for students of low socio-economic backgrounds who need financial aid. Community representatives serve on many admissions committees, including the Zamboanga Medical School as a presumed way of getting at an applicant's community orientation.

Community Involvement

It could very well be argued, and has been argued, that the education of health professionals is solely the prerogative of educational institutions. After all, such institutions are set up by society to produce the best graduates on behalf of a society. In this argument, the educational institution is to be left alone to do what it feels is best for society and community representation is not envisioned as direct involvement in the admissions process, teaching, curriculum decision-making, program evaluation, or tenure decisions. On the other hand, one way of operationalising community-orientation is to involve the community in the educational process. After all, so the argument goes, the control of the educational process is granted by society to an educational institution and it should, in turn, involve community or community representatives in the educational process. If a school is to be community-oriented one would expect that some mechanism would exist to hear what the community thinks is important.

In the nine schools studied, none have direct community representation in the curriculum decision-making process. This is somewhat puzzling for community-oriented schools. At the same time, all of the schools are trying to reach out to communities in some form or way. This is certainly exemplified by the Transkei program which has taken its commitment to community involvement to the level of training community representatives to participate. Also exemplary is the Suez Canal University involvement with the village of el tel Alkabeer. One could only question whether such involvement spreads to the rest of the Faculty of Medicine at Suez Canal University. If so, it is a very impressive approach indeed.

Indirectly through health problem prioritisation, linkages with the town council or other government bodies and participation in public health initiatives, all nine schools show responsiveness to community. In all nine schools, the community was involved in setting the general content for certain courses, for example. Community residents often serve as

"problems" for the PBL tutorials. They participate in evaluation of students' community-based research. They serve on advisory boards that set research agendas.

And let's not forget the Zamboanga Medical School Foundation, with its all volunteer faculty of community practitioners. Can we apply our conventional measures of community involvement to their situation?

Evaluation

In the area of evaluation, there seems to be little in the way of program evaluation developed. However, all schools say it is important and under development. Most of the attention (and it is considerable) has been given to student assessment. In many cases for example, there is a systematic process for student evaluation but not for program evaluation. In the case of Suez Canal University some attention is given to outcomes analysis but not as much as would be expected of a 20-year old school. In another example, Linköping, the reverse is the case. In a national study of all Swedish medical schools, in which Linköping came on top, the study cited problem-based learning, student influence, support from the County Council, use of health care facilities, early patient contact, multi-professional training, critical appraisal, a better examination system, and international exchange as areas of strength.

Research

In the area of research, for a community-oriented school, the concerns are: *Who decides what is to be researched? Is the research consistent with the community orientation or is it separate from such an orientation? Are students involved in community-based research? Are faculty members involved? Both?* It is essential that both faculty members and students be involved in community-based research for several reasons. First, the involvement of faculty demonstrates institutional commitment. Faculty involvement shows that the definition of scholarship is broad-based and that promotion and tenure decisions value bench research and community-based research. Faculty involvement also improves the quality of the students' research work and the investigational skills they will be taking with them. And finally, what kind of message are we sending if students (trainees) do community-based research and faculty members exclusively engage in biomedical research?

This issue plays out in varying ways among the nine schools. At East Tennessee State University, the community orientation of the health professions programs has served as a model for the community orientation of the entire institution; faculty are firmly rooted in several of the communities that serve as training sites and they are in a position to direct

community-based research over a long period of time. And, further, tenure and promotion decisions value - some might say require - community-based research, so interested faculty members do not find themselves making awkward choices.

Faculty Development

In the domain of faculty development there are some noteworthy programs. Most faculty development efforts are associated with problem-based learning, such as tutor training and case development. In many instances faculty development is informal; that is, there is no formal faculty development program, although faculty members have access to master's programs in many institutions. At Universidad de la Frontera, University of Gezira, Suez Canal University and the Christian Medical College formal short course are considered very central; at the University of Linköping, an intensive program in problem-based learning is mandated for all newly hired faculty. At Zamboanga Medical School, there is a formal master's degree in pedagogy for teachers of medical students.

Service and Other Educational Programs

Most of the schools provide direct care and other services needed by the region they serve. Provision of service enables advanced practice nursing programs and speciality residencies by providing a funding stream for supervised clinical learning. Our nine exemplars emphasize a primary care orientation at the undergraduate level; among speciality programs, family practice is emphasized. Many institutions offer master's programs in surgery, the medical specialities and/or public health. These programs tend to have two motivations: upgrading the skills of practitioners (especially in family medicine) and/or to reward those who teach by helping them to earn another degree.

Quality of Graduates

There are tensions and each of our nine programs makes efforts to address them. The main tension, addressed in every aspect of a school's practices - admissions, curriculum, evaluation, faculty rewards, etc. - is what makes a good doctor. It must be addressed when talking with the students and their parents. It must be clear in the minds of the funders, the politicians, government officials. It comes up in many ways: *"Are you training social workers or doctors?" "Can these graduates get into a British residency program? "Aren't you just training pubic health officers?"* And so on. Every program has to address the tension between curative and population medicine. Every program has to address how it can be socially responsive. *How much hospital experience in what kind of hospital is enough? How much out of hospital experience is enough? When should it be offered? The*

first year? The last year? Longitudinally? As they should, each comes to a different conclusion on these topics. What is the same, though, is that each accepts the responsibility to be relevant to social needs.

Change Takes a Long Time

In spite of the odds against them, this somewhat cursory look would indicate that these schools are becoming more community-oriented and socially accountable. In all nine schools, the changes made in the curriculum and the types of health professionals it will prepare are very dramatic and fundamental. It is nothing short of a paradigm shift from the traditional school mission to produce graduates able to tend to personal health care needs to a mission that puts personal health care needs into the framework of population health, however population is (locally) defined.

Since the beginning of the Network (1979) and its reform efforts, a group of leaders with established credentials as deans or distinguished faculty members at many faculties of medicine, have taken their schools into uncharted territory. They were astute politicians and visionaries. During what one might call phase one of reform (5-10 years), they kept ownership of their idea very close to them and were unwilling or unable to institutionalise it. Thus, their idea for reform of medical education was very personalised. This has been followed by a second phase (also 5-10 years), simultaneously marked by consolidation of change and a slipping back towards the "old ways". There is a third phase, yet to be seen in most places, one that will reinstiutionalise reform again. Some places will never get to the third phase, as many institutions will be satisfied with the level of change reached in the first two phases. In the cases described in this book, each phase is represented. Zamboanga Medical School is currently in phase one, with the enthusiasms, uncertainties and basic struggles common to that vibrant first phase of possibilities. The University of Gezira represents the issues common to the second phase: Having lost the energy of newness, will it continue to take an innovative approach or will it take the easy way out and be satisfied with community medicine blocks in a hospital-dominated program? East Tennessee State University shows us an institutionalised community-based program, one with the full support of its institution, one which in fact is able to act as a model for the university as a whole.

They all have accepted the two fundamental tenants stated in the first chapter: "Take public money, give to the public" and "Place matters". If schools take public money they should accept responsibility to give back to the public. Obviously, the rub comes over what "giving back" means. For some schools, it is a matter of leaving faculty members alone to decide what to do. For the schools written up in this book, it is a matter of being enough involved with the community or government to find out what is needed to be helpful in a given situation. All contexts considered (and they are varied) the evidence suggests that the schools in this book accept the responsibility to "give back".

They also practice the dictum "place matters". Each approach, whether analysed by institution or factor (curriculum, admissions, etc.) has been tailored to local community needs, institutional considerations and the level of resources available to the program.

Twenty-some years seems like a long time, but in fact the international movement for the reform of health professions education is still growing and maturing. We should all be pleased with the changes that have been made. Each of our nine exemplars - and in fact all members of the Network - struggle with the same issue: How do we operationalize training practitioners who are prepared to serve their society? In every aspect of the program, from admission practices to curriculum design to student and program evaluation the same question has to be foremost: What is a "good" practitioner? Whatever their answers, they are all plowing new ground and planting the seeds of social accountability and relevance to local needs.

List of Contributors

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Ms Andrews received her nursing degree with honours in community and psychiatric nursing fromthe University of the Western Cape and a public health degree. She currently serves as director of women's health and genetics for the national government in South Africa. In this capacity, she directs legal reforms and develops policy and service guidelines in the areas of maternal/child health, women's health and human genetics.

Prior to joining the government, Andrews served as director of community programs at the University of Western Cape. In this position, she led an education transformation initiative for health professions education as well as developed service delivery models and empowerment strategies.

She is currently pursing a doctoral degree. Her thesis is a case study of a specific community partnership program, looking at policy development, service delivery issues and community participation strategies and structures.

Jacques des Marchais, MD

Dr. des Marchais has been involved in medical education for over 25 years. An orthopaedic surgeon, he joined the University of Sherbrooke in the province of Quebec, Canada, as deputy dean of education in 1986. His appointment heralded the beginning of a major, comprehensive reform initiative for that institution's medical education program.

In 1988, he was elected president of the medical Council of Canada and in 1998 he became first vice-president of the Royal College of Physicians and Surgeons of Canada. He served as executive chairman of The Network from 1991-1995.

Roberto Gómez, MD

Dr. Gomez received his undergraduate degree at the University of Notre Dame. After complete his medical degree at the University of Texas Health Sciences Center in San Antonio, he entered the psychiatric residency program at the University of New Mexico.

He is currently associate dean for Cultural Affairs at the University of New Mexico School of Medicine. He serves as a tutor in the problem-based learning curriculum and has worked to make the curriculum move towards greater cultural competency. Dr Gomez maintains a small psychiatric practice at the University of New Mexico Mental Health Center.

A. L. Susirith Mendis, MBBS, PhD

Dr. Mendis is professor of physiology and dean of the Faculty of Medicine, University of Ruhuna, Galle, Sri Lanka. He received his MBBS in 1978 from the Faculty of Medicine, University of Sri Lanka in Colombo, Sri Lanka and in 1990 was awarded at PhD from the University of Ruhuna. In 1983, he was appointed as a research fellow at the Department of Molecular Endocrinology, University of London and Middlesex Hospital Medical School, in London, England. His research areas of interest include microbiological aspects of thyroid hormone action, bioethics and radioimmunoassay applications.

Mendis has assumed various leadership roles in Sri Lanka and participates in the national Health Research Council, Presidential Task Force on General Education Reforms, the National Science Foundation's Committee for Medicine, Dental & Veterinary Sciences and the bioethics committee of the Sri Lanka Association for the Advancement of Science. Mendis has also participated in many health-related international initiatives, including serving as a temporary advisor to the regional director of WHO's South East Asian Regional Office in 1996 and 1997.

Ronald Richards, PhD

Dr. Richards, professor of health policy and administration at the University of Illinois at Chicago's School of Public Health, has spent over 30 years working towards the goal of making health professions education more responsive to the needs of people in communities.

Until recently, he served as director of the University of Illinois at Chicago's International Center for Health Leadership Development, a strategic alliance between UIC and the W.K. Kellogg Foundation of Battle Creek, Michigan. The Center offers short courses to domestic and international leaders, conducts a fellowship program in health leadership, serves as a broker for leadership programs and consults on the development of community-based leadership programs.

Before coming to UIC in 1997, Dr. Richards was a program director at the Kellogg Foundation, responsible for the foundation's Community Partnerships Initiatives I and II, as well as program evaluation and the Kellogg International Leadership Program. Earlier he was professor of medical education, director of the Center for Educational Development, Michigan State University's Office of Medical Education Research and Development, and founding head of the MSU College of Human Medicine's Upper Peninsula Medical Education Program.

Dr. Richards served as principal investigator on a World Health Organization (WHO) sponsored study of ten primary care-oriented medical schools in nine countries. He received the WHO's award for contributions toward the goal of "Health for All," and has consulted for WHO in over 25 countries. He has had numerous articles published in

professional journals and recently edited a book on the Community Partnerships Initiative entitled, "Building Partnerships."

Christopher Urbina, MD, MPH

Dr. Urbina received his undergraduate degree from Stanford University in and his medical degree from the University of Colorado in 1980. After completing a residency in family practice at the University of New Mexico, he earned a Master`s in Public Health from John Hopkins School of Public Health and Hygiene in 1989.

Urbina is currently an associate professor and vice chair of the Department of Family and Community Medicine at the University of New Mexico in Albuquerque. He also serves at director of the Preceptorship Office, director of the Area Health Education Centre and the Border Health Education Training Centre for the University of New Mexico`s School of Medicine.

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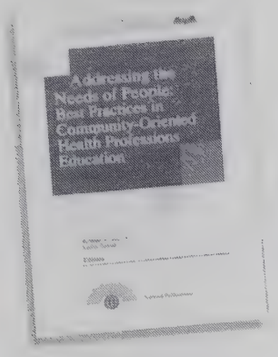

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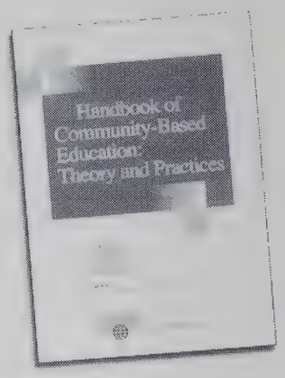

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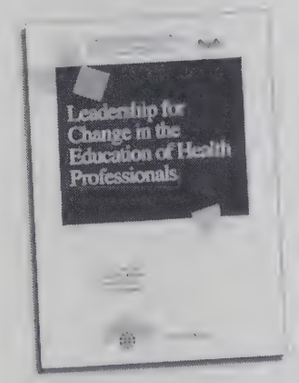

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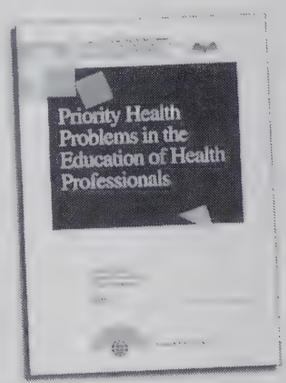

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